

FORTY-FOURTH ANNUAL REPORT

OF THE

DEPARTMENT OF MARINE AND FISHERIES

1911

MARINE

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OTTAWA

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1911

[No. 21—1912.]

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*To His Royal Highness, Field Marshal, Prince Arthur William Patrick Albert, Duke of Connaught and Strathearn, K.G., K.T., K.P., &c., &c., &c., Governor General and Cammander-in-Chief of the Dominion of Canada.*

MAY IT PLEASE YOUR ROYAL HIGHNESS:

I have the honour to submit herewith for the information of Your Royal Highness and the Parliament of Canada, the Forty-Fourth Annual Report of the Department of Marine and Fisheries, Marine Branch.

I have the honour to be,

Your Royal Highness's most obedient servant,

J. D. HAZEN,  
*Minister of Marine and Fisheries.*

DEPARTMENT OF MARINE AND FISHERIES,  
OTTAWA, NOVEMBER, 1911.







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C.G.S. *Stanley* cutting icebound vessels out of Bridgewater, N.S.  
C.G.S. *Stanley* cutting icebound vessels out of Bridgewater, N.S.



# REPORT

## OF THE

### DEPUTY MINISTER OF MARINE AND FISHERIES

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To the Honourable L. P. BRODEUR,  
Minister of Marine and Fisheries.

SIR,—I have the honour to report on the transactions and service of the Marine Branch of the Department of Marine and Fisheries for the fiscal year ending March 31, 1911.

My appointment by Order of the Privy Council as Deputy Minister of the Marine and Fisheries Department took place the 8th June, 1910, and I entered upon the duties of my office immediately.

At the time of the establishment of the Department of Naval Service in 1910, several branches of this department were detached and became branches of that department, consequently, several reports which were formerly included in the Marine report will now be found in the annual report of the new department. The branches referred to are the hydrographic, wireless telegraphy, tidal survey and naval militia.

Some items of expenditure, in connection with these branches for work and service begun before the transfer, have necessarily been included in the statement of expenditure of this department for the fiscal year, 1910-11.

Careful, but ample estimates were prepared for proposed work and improvements along the coasts and in harbours of the Dominion, but the early setting in of winter in December, 1910, interrupted operations that would otherwise have been continued until a later period. This was the case in connection with lighthouse and coast service, ocean and river service and the work in the St. Lawrence river ship channel. An examination of the statement of appropriations of parliament and expenditure, included in this report, will show that the expenditure has been much less than the appropriations. The total appropriations, for Marine and Fisheries, amounted to \$6,196,723.62 and the total expenditure to \$4,798,988.18; the unexpended balances therefore amount to \$1,397,735.44. The fishing bounty expenditure, which amounted to \$159,166.75, is not included in the above total as the money is not appropriated by parliament, but is derived from interest on an amount paid to the government, by the United States, as an award for use of the inshore fisheries of the maritime provinces.

An analysis of the financial statement, will also show that the principal unexpended balances relate to appropriations for construction of lighthouses and construction of two steamers. Some delays occurred through difficulties of transportation



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of material for lighthouse construction, and the new aids to navigation, along the St. Lawrence ship channel, have cost less than was anticipated. Contracts for the new steamers have been entered into, one for the lighthouse and buoy service on the coast of British Columbia and one to be employed in the ship channel, St. Lawrence river, inspection. Plans and specifications have been prepared for a buoy steamer to replace the *Shamrock* in the St. Lawrence river, between Montreal and Quebec.

Apart from the question of expenditure, the lighthouse construction embraced the erection, by the Engineer's branch, of light towers, fog alarm buildings, keepers dwellings, oil sheds and boat houses. The selection of sites in localities to make effective the lights for vessels in various waters received careful attention. Improvements were also made at a number of light stations in order to prepare certain lighthouses for the installation of larger lanterns, containing lighting apparatus of greater magnitude. In addition to this, repairs and enlargements were undertaken and in many cases completed, at old stations. Personal inspection was made of the work by the Chief Engineer and officers attached to his branch at Ottawa, when office duties permitted, and district engineers attended to inspection in their several districts. At the less important buildings constructed, local inspectors were employed to see that the work was performed according to contract, and departmental foremen had in charge the work where it was done by days work.

The construction of several new fog alarm buildings, together with the installation of machinery and power plant, engaged the attention of the Chief Engineer's branch. The establishment of a complete marine depot at Prince Rupert, has been under contemplation by the department and comprehensive plans have been prepared of offices, storehouses, power houses, wharves, tramways, electric lighting plant, water supply, machinery, equipment and furnishings. Tenders for the grading of the site and complete construction of the depot, have been considered, a contract made and the work has been begun. An officer of the Chief Engineer's branch familiar with the plans, has been entrusted with the supervision of the work and remains at the location constantly.

The ordering of new illuminating apparatus and installation came under the supervision of the Commissioner of Lights and Buoys. The principal work of his branch consisted of substituting modern dioptric lights with petroleum vapour, as an illuminant, at the major coast lights for older and less efficient apparatus and illuminants. This work of establishing illuminating apparatus of a more powerful and modern contrivance, has been receiving the attention of the department for three years, and the result, has been highly satisfactory to navigators and shipowners. As the work has progressed it has become more evident that the continuation of this work is necessary; it will greatly improve the lighting system and make it far superior to the old catoptric system formerly in use. The extension of dioptric lighting apparatus is taking place at several important stations at present.

During the past fiscal year, the branch of the Commissioner of Lights has given attention to the repairs and maintenance of lighting apparatus throughout the Dominion, also to automatic acetylene beacons, unwatched lights, automatic acetylene buoys and submarine warnings. The work of placing, maintaining and repairing these aids has been under the immediate control of the agents of the department in



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the several provinces and the various superintendents of lights have supervised the work, inspected the lighthouses and delivered supplies necessary for their upkeep.

The Dominion steamers attached to the agencies employed in the buoy and lighthouse service have been regularly inspected by the inspectors to whom the work has been assigned; all necessary repairs were made and equipment and furnishings required were supplied. The transportation of building materials for lighthouses, delivery of supplies for maintenance of the lights, throughout the Dominion, and placing of coast buoys has been performed as usual. Steamers engaged in other services have received similar attention; the expenditure in connection with the upkeep of all Dominion steamers has been kept well within the appropriation of parliament for this particular service.

Construction of steamers, boats, barges and vessels, intended for a more thorough carrying out of the departmental service generally, and for replacing several vessels found unsuitable for the work in which they have been hitherto engaged, has progressed. Some of these vessels have been constructed at the Sorel shipyard and others are now being built under contract. The expansion of the lighthouse and buoy system along our coast and on the great lakes and rivers; and work in the St. Lawrence river ship channel, made it necessary to add to the number of Dominion steamers.

The changes in the pilotage system of the St. Lawrence to which you have given personal attention have been attended with beneficial results. The officers, who have direct supervision and responsibility of examinations of pilots and the management of pilotage funds, have reported upon the transactions of the year. The importance of still further raising the standard of qualifications of pilots and requiring faithful performance of duty by pilots, has been fully realized. To this end some important details of the system are receiving special attention.

The life-saving equipment at the various stations has not been as complete as has been found necessary, but improvements are now being carried out under an officer specially appointed for the duty. His recommendations have been considered, and in many cases acted upon. A number of stations require reorganization and this work is progressing.

The classification of lightkeepers and keepers of fog alarm stations has placed this service upon a better basis with regard to promotions and payments of salaries. The keepers, generally, are satisfied with the new arrangement, and complaints have ceased. The classification, as stated in last year's report has been based upon the importance of the station attended and the rank and salaries of the keepers determined by the class of the station. The improvement in the circumstances of the keepers is already bringing results in regard to a better service.

Reports from agents of the department have been received, containing valuable information concerning the details of lighthouse and buoy service, and reports upon the movements of the Dominion steamers attached to their agencies. Repairs to lighthouses, steamers, buoys, wharves, workshops, plant and equipment have been made and the delivery of building material, supplies to lighthouses and work generally has been carried out in accordance with instructions.



In the following pages of this report will be found summaries of official reports under descriptive headings, and the appendices consist of reports of officers of different branches in full. Statements of expenditure and revenue, form separate appendices of this report.

The subdivisions of the Marine Branch of the department are as follows:—

The construction of lighthouses and fog alarms by the Engineer's branch.

The maintenance of lights, gas buoys and other buoys by the Commissioner of Lights branch.

The Lighthouse Board, which decides the necessity for aids to navigation.

Dominion steamers.

The ship channel, St. Lawrence river, the Sorel works.

Meteorological and magnetic service.

Investigations into wrecks.

Board of steamboat inspection.

Cattle shipments inspection.

Marine hospitals.

Submarine signals.

Shipping under the Merchants Shipping Act.

Legislation and administration of laws relating to the Department of Marine and Fisheries.

Humane service in connection with seamen.

Wrecking plant subsidized.

Winter communication.

Removal of obstructions to navigation.

Examination of masters and mates and issuing certificates.

Pilotage.

Government of ports and proclaiming of harbours in the Dominion.

Control of harbours and government wharfs.

Dominion steamers, Marine and Fisheries.

Hudson bay and navigation of northern waters.

### LIGHTHOUSE SERVICE.

Lighthouse construction work consisted of erecting concrete towers, wooden towers, skeleton towers, dwellings for lightkeepers, fog alarm buildings, oil sheds, and boathouses. In several cases piers were also built as foundations. Plans were prepared in the Engineer's branch and the following work carried out. In Nova Scotia changes and improvements were made at eight different stations, fog alarm machinery was installed at two stations, one concrete tower and one dwelling house were built. In New Brunswick repairs and improvements were made at eleven light stations, four wooden towers were erected, one pole light, one beacon and one dwelling house. In Prince Edward Island repairs were carried out at three stations and at the Charlottetown marine wharf.

In Quebec province, one fog alarm station was established, one annex was built for a fog alarm and one important station was enlarged and new machinery installed.



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Repairs were completed at twenty-seven lighthouses. Five concrete towers, five wooden towers, three steel skeleton towers, three pole lights, three dwelling houses and two beacons were erected.

In Ontario, three concrete towers, three wooden towers, one steel skeleton tower, one tripod light and one pole light were erected. Repairs were made at fifteen light-stations in this province.

In British Columbia, two reinforced concrete towers were built, twelve beacons, one pole light, one semaphore and repairs completed at nine light stations and work done on the west coast trails leading to Banfield life saving station.

The total number of lights in connection with lighthouses throughout the Dominion at the end of the fiscal year was 1,291, consisting of the first, second, third, fourth, fifth, sixth and seventh order of lights, pressed bulb lights and catoptric lights. Lightships, lightboats and gas buoys are not included in the number of lights, but form a separate list of aids to navigation.

The complete list of lighthouses, land lights, and lighted buoys has been published in connection with the Engineer's branch.

During the twelve months, between the 1st of April, 1910, and the same month 1911, 'Notice to Mariners' were issued, relating to the establishment of aids to navigation, changes in established aids and improvements to lighthouse buildings, fog alarms, beacons and buoys. These notices contain valuable information and have been sent to various ports where masters of vessels can procure them for their guidance in entering ports and navigating waters in which the improvements have been made. Known obstructions to navigation, caused by wrecks and accidents to vessels, were made subjects of notices. In addition, notices were also issued for the benefit of Canadian mariners, respecting aids in waters contiguous to Canadian waters around the coast of Newfoundland, Labrador and part of the United States. Some important notices were sent out relating to changes and improvements in British and foreign waters, but these notices did not embrace all British and foreign notices received by the department. Selections only of special concern to Canadian seamen were made and included in the Departmental 'Notices to Mariners.' All hydrographic notes which reached the department, however, were embodied in Canadian notices.

The maintenance of lights forms a large item of expenditure for supplies. These supplies were delivered as usual by the superintendent of lights in the different agencies and provinces by Dominion steamers without interruption. Reports of the agents furnish details of the service at each light station. The work has far exceeded the service of former years owing to the yearly extension of the lighthouse system along our coasts, lakes and rivers. This service is becoming so much greater than formerly that the department has found it necessary to consider an addition to the fleet of steamers in British Columbia in particular, while Prince Edward Island work has been somewhat hampered by the removal of the *Stanley* to New Brunswick, where an additional boat was required for attending lights. The *Brant*, employed as a lighthouse tender in Prince Edward Island, is complained of owing to her limited size. A new steamer is under construction for the lighthouse service in British Columbia and another for the St. Lawrence river in the Montreal agency.



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## REMOVAL OF OBSTRUCTIONS TO NAVIGATION.

Removal of sunken vessels that formed obstructions to navigation took place, but, in some instances, delay occurred due to causes over which the department had no control. In other cases, wrecks happened and formed obstructions that were not removed because the owners of the vessels, whose business it is to take action, neglected to do so or were unable. These owners were notified, where information of the occurrence of wrecks was received, and requested to have the obstructions removed promptly. The removal of obstructions by the department was done under contract as usual. The detailed account of cost of removal is included in the report of the Chief Engineer, who has control of this work. A summary embraces the removal of the schooner *Ariel* and scow which sank in Owen Sound harbour; cost of removal by contract \$2,100; the steamer *Canada* sunk in Colpy bay, cost \$350 for removal; tug *Lula Rae*, which sank at the mouth of Kaministiquia river, Fort William, Ontario, was removed at a cost by contract of \$600.

## ICE-BREAKING CONTRACTS.

The Canadian Towing and Wrecking Company, Limited, of Port Arthur, which has the contract for ice-breaking in the harbours of Fort William, West Fort William and Port Arthur, kept open these harbours until December 17, 1910, and opened navigation in the spring of 1911 when the Sault Ste. Marie canal was clear for vessels. The contract price is \$30,000 for fall and spring work, and includes conveyance of certain lightkeepers from their stations in Lake Superior. Tiffin and Victoria harbours were kept open for grain vessels from open water in Georgian bay until the close of navigation by the Midland Towing and Wrecking Company, Limited, at a cost of \$5,500. The supervision of this service also forms part of the work of the Chief Engineer's Branch. The detailed report of the Chief Engineer forms Appendix No. 1 of this report. Ice-breaking in the St. Lawrence river is described in the report of the Ship Channel.

## ILLUMINANTS, ILLUMINATING APPARATUS AND GAS BUOYS.

In the report of the Commissioner of Lights and Buoy Service will be found a detailed account of the work done in his branch. The principal work performed was the substitution of modern dioptric apparatus, in a number of major lights, and the improvement of minor coast lights, by the installation of petroleum vapour as an illuminant. Extension and maintenance of the gas buoy and beacon service engaged the attention of the branch. The maintenance of lights and other aids throughout the Dominion, together with the installation of apparatus at new stations, was performed.

The report of the commissioner refers to the satisfactory season of 1910, in which no interruptions of importance occurred; only two losses of buoys happened, viz.: gas buoy, type No. 11, serial No. 575, was driven from its moorings and carried ashore near Centreville, N.S., and was totally lost, also a gas buoy, type No. 9½, serial No. 711, was lost from Kyuquot, B.C., and has not been recovered. One No. 11 gas buoy reported last year as having broken adrift from Southwest Head, Cape Sable, N.S.,



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was recovered and repaired. A small type gas buoy sunk in 1906, in Georgian bay, was located by the C. G. S. *Simcoe* and recovered.

The lighting apparatus now in use in the Dominion lighthouse service, in which are operated distinctive lights, are known as quick-flashing lights, occulting lights, fixed lights (red and white), anchor lenses for pole lights, and a few Wingham 30-day lights. The reflectors or catoptric apparatus is used for revolving and fixed lights. The illuminants used consist of petroleum oil, oil vapour and acetylene (compressed and automatically generated in the buoys and beacons) and pintsch gas.

In the Quebec district and St. Lawrence river, pintsch gas was formerly used in the gas buoys but acetylene has been substituted throughout these districts with the exception of the illuminant used at Beaujeu bank pier light. Pintsch gas is generated by the pintsch gas apparatus from crude petroleum, at Quebec and conveyed to the pier.

Buoys are charged with calcium carbide, by officers detailed for that work at the different agencies, who perform the work under a strict code of regulations and the Dominion steamers are employed for placing and removing these buoys. The St. Lawrence river gas buoys above Montreal, and on the Great Lakes, are attended by the crews of the steamers *Scout* and *Simcoe*, supervised by expert officers. Part of the work of repairing the lighting apparatus is done at the several agencies in the maritime provinces, British Columbia, Quebec and Montreal and for the Great Lakes, Georgian bay and Upper St. Lawrence river at Prescott and Depot Harbour. The illuminants for use in the different agencies for lighthouses, gas buoys and beacons were delivered under the supervision of the Superintendents of Lights and Buoy Service as usual and no interruptions of importance have been reported.

The equipment for testing lighthouse apparatus and gas buoys at the Dominion depot, Prescott, has been usefully employed in making comparisons between one order and another. These tests have been made with a view of determining the suitability of lanterns and lighting apparatus, for the different stations, where it was decided to install new apparatus or improve the old. Combinations of machinery, one order with another have been worked out with satisfactory results. Illuminants have also been tested before extensive purchases were made and experiments made with oil, oil vapour and acetylene.

The submarine warning stations have been in full operation during the season of navigation and, as stated in the commissioner's report, with entire satisfaction to shipping. Four submarine bells attached to gas buoys with improved adjusting and durable attachments, have also given satisfaction and this type of warning may be safely recommended for more general use.

The report of the Commissioner of Lights and Buoys contains several enclosures, furnishing details of work performed during the fiscal year and a tabular statement of all light stations, lights, fog alarms, lighted buoys and beacons and the number of lightkeepers throughout the Dominion. The report of the Commissioner of Lights forms Appendix No. 2 of this report.



## ST. LAWRENCE RIVER SHIP CHANNEL.

The ship channel of the St. Lawrence river between Montreal and Father Point, has a length of 340 statute miles.

The contracted part of the river which may properly be called the 'ship channel' commences at the Traverse, to which point from Montreal the distance is 220 miles. The length of the channel that actually required improvement by dredging is 70 miles, of which 64.05 miles to a depth of 30 feet at the lowest stage of the water in the river was completed at the close of navigation in 1910, leaving 5.95 miles yet remaining to be dredged.

From Montreal to Batiscan the tide does not affect the channel for navigation and therefore, to enable vessels to load to full depth, the dredging of this part of the river was first undertaken and is now completed.

The channel has a minimum width in the straight portion of 450 feet and at the curves of from 500 to 800 feet. Very deep draught vessels wait for the tide to pass Cap à la Roche and St. Augustin bar.

The work remaining to be done is about  $1\frac{1}{2}$  miles of shale rock at Cap à la Roche about three-quarters of a mile at Grondines; about 1 mile at St. Augustine bar, also about 1 mile of widening at Ste. Croix. Cap à la Roche will probably take from two to three years to complete, while the remainder to Quebec should be completed one year later.

The project of work below Quebec had in view a 30-foot channel at low tide at St. Thomas flats and at Beaujeu bank everywhere 1,000 feet wide.

The Beaujeu bank channel was completed in depth in 1909 and widened in 1910. The St. Thomas channel, where the material is clay and sand, is expected to be finished in 1911.

The Cap Levrard channel, formerly 300 feet wide and only  $27\frac{1}{2}$  feet deep, was made wider and deeper. This channel is now 450 feet wide and 30 feet deep at low water according to the datum established in 1897.

The 30-foot channel is now completed to the upper end of Cap à la Roche channel, a distance of  $107\frac{1}{2}$  miles from Montreal. Some progress was made during the past season in deepening the channel to 35 feet. About 3 miles of this work was done in Lake St. Peter. Owing to the greater difficulty in dredging at the increased depth more powerful machinery will be employed, and this machinery is now under construction.

The 35-foot project has been fully considered, and in the season of 1909 the first work of deepening the ship channel to that depth was begun. The main efforts, however, have been confined to the completion of the 30-foot channel in order to give vessels a depth of 30 feet in the whole channel without depending upon the tides to assist deep draught vessels to pass Cap à la Roche and St. Augustin bar.

The present plan is quite ample for the 30-foot channel, but the strain on the dredges in the greater depth has been so clearly demonstrated that it has been decided to add equipment of more substantial and effective character to the plant now in use. When the additional machinery is completed, no doubt is entertained about rapid progress being made in the 35-foot channel. When the deepening is accom-



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plished the largest vessels afloat, drawing full cargo depth, will be able to reach Montreal at the lowest stage of water that is liable to exist at any season of the year.

In connection with new plant introduced in 1910 is a rock cutter, imported from Scotland and made by Lobnitz and Company of Renfrew. This rock cutter was experimented with by utilizing part of the hull and machinery of the stone-lifter formerly in use. The results were most satisfactory, showing that after the rock-cutter ram had gone over the ground the dredge could remove about 75% more material than without the aid of the ram. The operations were started at Cap Charles in the Cap à la Roche section of the channel. Upon the results obtained, it was decided to order a 22-ton rock-cutter ram of greater length for high tides in the 35-foot channel from Lobnitz and Company. The 20-ton one used in Cap à la Roche channel, where the shale rock is very hard, broke this rock without difficulty, taking an average of five blows to penetrate three feet, the penetrations being five feet apart. The value of the rock-cutter is attested by the fact that the strain on the dredges is very much less, time is saved and fewer repairs are necessary.

Two semaphores, indicating the depth of the water in their respective localities, were maintained, one at St. Jean Deschaillons for the depth in the dredged Cap à la Roche channel was put in operation on May 2, and the other at St. Nicholas showing the depth over the undredged bar at St. Augustin on May 24, 1910.

The superintendent of the ship channel records, in his report, the trip of inspection which you in your capacity as Minister of Marine and Fisheries made of the channel, accompanied by officials, representatives of the Shipping Federation of Canada, Montreal Board of Trade, La Chambre de Commerce, Montreal and Quebec harbour commissioners and representatives of the Montreal and Quebec pilots.

Another very interesting part of the work to shipowners was the commencement of dredging to the site of the proposed floating dock to be constructed in Montreal harbour. The dock basin, to be undertaken by the Montreal harbour commissioners, is some little distance from the main channel; on this account the Department of Marine and Fisheries agreed, in the interest of navigation, to dredge the approach to the floating dock, and good progress is reported, leading to the opinion that the approach to a depth of 30 feet low water of 1897 datum, and a minimum width of 750 feet, will be completed by the end of the season of 1911.

The expenditure for dredging work in the channel for the fiscal year 1910-11 amounted to \$576,838.02, or 10<sup>30</sup>/<sub>100</sub> cents per cubic yard. Total number of cubic yards dredged during the year was 5,600,050, and for maintaining, supplying new plant, shops and surveys \$138,247.81 was expended. The total expenditure for accomplishing the whole work up to March 31, 1911 was \$8,358,332.23; for dredging and for plant and repairs and sweeping the channel, \$3,756,770.41; total, \$12,115,102.64. These sums embrace the items of disbursements strictly confined to deepening and widening and sweeping the ship channel, but do not include incidental expenses charged to the Ship Channel account since the work was transferred from the Public Works department. Some of the repairs were done while the dredges were at their working localities, but all extensive repairs and overhauling were carried out at the Sorel shipyard.

One of the large items of expenditure for construction, was incurred in connection with the building of a large steel dredge at Sorel, by the department and extended



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over a period included in three fiscal years. The dredge was completed and put at work in August, 1910, in the new channel being dredged to the floating dock basin, Montreal harbour. It is claimed that this dredge is one of the most powerful, if not the most powerful, known to the department, in the world.

The report of the superintendent includes several comprehensive tabular statements showing the details of the work performed, disbursements, &c., during the past year and a statement containing the cost of the ship channel since its inception. Included in the report is also a statement detailing the number and kind of dredges, tugs, scows, stone lifters, stone cutter ram and sweeping apparatus.

Sweeping of the channel was carefully performed, but no obstructions of consequence were found. The favourable natural conditions found in the bed of the St. Lawrence river, through which cuttings have been made, as well as in the deep water sections where no cuttings were necessary, have been described in former reports. The practise of sweeping is continued each year as a precaution against the filling in by silt of the cuttings, or the chance displacement of boulders that might be carried into the channel by the ice or other means. The Great Lakes act as basins that retain any sediment or debris conveyed into their waters by running streams, and no streams, emptying into the river itself, contain material of this kind to any considerable extent, therefore, no redredging has been found necessary, and no fear is entertained of any serious filling up anywhere in the channel. These facts, however, would not justify the department in overlooking all necessary precautions, and therefore, the practice of sweeping and examining the channel is kept up each season.

The report of the superintendent of the ship channel also contains a very interesting report by officer McLean, on icebreaking from Quebec to Montreal, during the winter. Mr. McLean describes the work of the *Montcalm* and *Lady Grey*, both ice-breaking steamers. The work consisted of cutting channels in the narrower parts of the river, where it had become rafted or accumulated, and by detaching bodies of ice in other parts, allowing it to be carried down stream. The beneficial results are summed up by stating that flooding in the spring was prevented at certain low lying lands along shore; dredging operations were begun earlier and navigation from lower ports in the St. Lawrence river to Quebec, Three Rivers, Sorel and Montreal, was made possible sooner than if the ice had been allowed to escape in a natural way.

Twelve signal stations, with masts and cross spars, have been serviceable in connection with furnishing information to passing vessels, respecting weather conditions at any point along the river and by telephone communication with either Quebec or Montreal. This service has been valuable when orders for articles required in repairing dredges and scows have been sent to Sorel.

The ship channel has been carefully buoyed with gas and other buoys throughout the season of navigation and the lighthouses along the shore of the river have at all times been kept in a state of efficiency. This service, however, comes under the Dominion lighthouse and buoy service.

The report of the Superintendent of the ship channel forms an appendix to this report.



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## SOREL SHIPYARD.

The ship channel fleet is overhauled and repaired at this shipyard during the winter months and when, during the working season of the fleet any extensive repairs are required, the dredge, tug or scow requiring repairs is sent to the yard. The whole ship channel fleet, with the exception of two or three cases was put into winter quarters at Sorel in the fall of 1909 and numbered 65 vessels. Ten other crafts belonging to this department and the Public Works department were also in winter quarters at Sorel.

These vessels were repaired and made ready for the spring and summer work. It was found necessary to haul out on the slips a number of the vessels to examine the hulls and caulk the bottoms of tugs and barges. The nature of the repairs to each steamer, dredge, tug, barge and scow is described in the report of the superintendent of the shipyard.

The construction work included almost every kind of work necessary for the requirements of the department, and embraced the completion of a supply steamer, a powerful dredge, one elevator dredge, a dipper dredge, two tugs, two self-bailing life-saving motor boats, two dumping scows, a sounding scow, a steel sounding scow, a steel coal barge and installing a rock breaker for the ship channel work on a scow intended as a stonelifter.

The buildings and shops, where necessary, were repaired and painted, the narrow gauge railway was maintained in good working order; the water works system, compressed air distribution, electric power lines and telephone lines were also properly maintained. The ship hauling ways and wharves were repaired; the former needed extensive work and the deep water pier was lengthened. New machinery of a minor nature was installed and an air compressor with a 35 h.p. dynamo was placed in the boiler shop, and four transformers were installed in the power house to supply current for the new motors of the punching machines.

The expenditure at the Sorel shipyard for the fiscal year amounted to \$1,174,749.55. This expenditure included the cost of repairs to the ship channel plant and construction for that service, of dredges, tugs and scows.

The report of the Superintendent of the Sorel shipyard forms an appendix to this report.

## DOMINION STEAMERS.

The Dominion steamers received their usual annual overhaul and necessary repairs were made to fit them for the special work in which they are engaged. The inspector of machinery T. R. Ferguson, and inspector of hulls of Dominion steamers, F. McConkey, reported their work of inspection of the steamers employed in the maritime provinces and Quebec. In British Columbia inspection is done by the steamboat inspector of that province when overhauling and special repairs are made.

Owing to navigation being continued throughout the year to Halifax and several ports on the eastern and southeastern coasts of Nova Scotia, and the Bay of Fundy, the steamers *Lady Laurier* and *Aberdeen*, in the Nova Scotia agency, and the *Stanley* and *Lansdowne* in the New Brunswick agency, were kept in commission



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all the year except when repairs were being made. The steamers *Quadra* and *Newington*, in British Columbia, were also engaged throughout the year in the lighthouse and buoy service.

The Quebec steamers were placed in winter quarters at Quebec, excepting the *Montcalm* and *Champlain*. The *Montcalm* made trips to the gulf in December and January, and during the remainder of the winter was engaged in icebreaking between Quebec and Montreal. The upper St. Lawrence and lake steamers of the department were placed in winter quarters. The dimensions of the various steamers, tonnage and other particulars are here given for convenient reference, while the movements are furnished for the purpose of showing the localities and service in which they were employed, and when they began and ended the season's work.

Sixteen of these vessels wintered at Québec, and repairs were made by men employed in the department's workshops at that place. Several of the smaller vessels employed in the lighthouse and buoy service in the Montreal agency were placed in winter quarters at the Sorel shipyards and repairs made to them at the shipyard. The whole ship channel fleet also wintered at Sorel, where overhaul and repairs were done.

*'Lady Laurier.'*

This steamer is a twin screw vessel 214.9 feet long, 34.2 feet wide, 17.2 feet deep; 413 net, 1,051 gross tonnage and 186 nominal horse-power. She was built in Paisley, Scotland, in 1902, and is employed in the lighthouse and buoy service in the Nova Scotia agency of the department.

On April 1, 1910, the *Lady Laurier* was employed in placing buoys in Halifax harbour and continued one week in this service. On the 5th of the same month, the vessel sailed to Sable island to deliver supplies. She returned to Halifax on the 8th, and was continued in lighthouse and buoy service until July 27. From July 28 until August 12 this steamer was engaged in the submarine cable work at Yarmouth. She resumed the buoy service in those waters until August 20, when she returned to Halifax and had her hoisting gear repaired, and on the 24th resumed the buoy service. She again began the submarine operations at Yarmouth on the 29th, and on September 2 sailed to St. John, N.B., in connection with placing two large gas buoys. Her work on submarine cable laying was resumed at Lunenburg on September 10. She continued in that service until the 20th of that month, when she returned to Halifax. From that place she again engaged in lighthouse and buoy service generally, until October 19, when she sailed for Sable island with supplies. At Sable island 31 ponies, 9 barrels of cranberries and a number of passengers and luggage were taken on board, and the vessel proceeded to North Sydney, where the ponies were landed, and after taking bunker coal the steamer was engaged in the buoy service and continued in this service until January 27, 1911. The vessel was hauled to No. 1 pier, Halifax, and repairs made to boilers. On February 16 the *Lady Laurier* was again put in the lighthouse and buoy service until March 2, and then proceeded to Halifax and moored at the dockyard.

Some extensive repairs to the machinery were made in June, 1910, when the vessel was hauled out on the slip at Halifax; additional repairs were made in October and a general overhaul and repairs done in January, 1911.



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## 'Aberdeen.'

The *Aberdeen* is a single screw steel vessel, built in Paisley, Scotland, in 1894. She is 180 feet long, 31.1 feet wide, 16.9 feet deep; 266 net, 674 gross tonnage, and 200 nominal horse-power. She is employed in the Nova Scotia lighthouse and buoy service. Her work includes placing and raising heavy coast buoys in the Prince Edward Island agency.

This steamer was undergoing repairs from March 21, 1910, until April 18. On April 19 she was placed in commission conveying coast buoys and moorings to the eastern shore of Nova Scotia, she continued working on the coast of Nova Scotia on her way to Charlottetown, and arrived at that port on May 1. The vessel completed the placing and charging of gas buoys in Prince Edward Island, and resumed her work on the Nova Scotia coast on May 12. The *Aberdeen* was employed in conveying building material to several lighthouses and also engaged in buoy service in Nova Scotia. On May 31 she left Halifax for Cape Freels and Cape Race, Newfoundland, with lighthouse material, calling at Sable island on the way.

This vessel was employed in lighthouse and buoy service on the Nova Scotia coast, Bay of Fundy and Prince Edward Island coast until March 16, 1911, when extensive repairs were begun at the Halifax dockyard. Minor repairs had been made throughout the year at the dockyard.

## QUEBEC DISTRICT.

## 'Montcalm.'

The *Montcalm* is a powerful ice-breaker, specially designed for the St. Lawrence river service. She was built at Yoker, G.B., in 1904, and is a twin screw steel vessel, 245 feet long, 40.6 feet wide and 15.7 feet deep; 526 net, 1,432 gross tonnage; 406 nominal and 4250 indicated horse-power at a steam pressure of 220 pounds.

She is commanded by Captain Pelletier, carries a crew of about sixty men and is employed during the summer season delivering lighthouse supplies, landing workmen and construction materials at lighthouses and fog alarms in the Gulf of St. Lawrence and Strait of Belle Isle.

In the winter the *Montcalm* is employed in icebreaking in the St. Lawrence river, maintaining communication with Seven Islands and Anticosti, in which services she has been very successful during the past fiscal year.

She towed the White Island lightship and Lower Traverse buoy to their respective positions on the 9th of April, was ordered to go in dock for repairs on the 29th. Defective rivets were replaced, her bottom caulked, rudder coupling bolts and horse shoe plates repaired and her bottom well coated with composition.

She left the dock on June 1, made preparation for the summer service, started on July 8 with lighthouse supplies for Belle Isle Newfoundland coast, Bird Rocks, Brion island, Magdalen islands and returned to Quebec on August 6.

She sailed on September 9, for Anticosti, Baie des Chaleurs and Gaspé coast with lighthouse supplies, and on October 16 made another cruise to the north shore, west coast of Newfoundland, Bird Rocks, Gaspé and Anticosti returning to Quebec on the 31st, after which she was laid up for necessary repairs.



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Resuming operations she rendered assistance to the Canadian Government steamer *Druid* in removing buoys from their stations, and on February 5 left for Seven Islands and Anticosti returning to Quebec on the 12th of the same month.

The success of this trip is especially interesting, as it shows the possibility of continuous winter communication between Quebec and those islands which have hitherto been isolated for five months each winter.

The *Montcalm* then resumed operations in the ice above Quebec. She was successfully operating there at the end of the fiscal year.

She consumed 4,983 tons of coal and sailed 14,525 miles during the fiscal year.

*'Montmagny.'*

The *Montmagny* is a screw steel, steam vessel, built in the government shipyard, Sorel, P.Q., in 1909. She is 212.6 feet long, 34.8 wide, 19.5 feet deep; 1,269 gross, 723 net tonnage and 148 nominal horse-power.

She was placed at the disposal of the Quebec agency for construction purposes on July 3, 1910.

She was employed exclusively in transporting workmen and materials to stations in the River St. Lawrence, Strait of Belle Isle, Baie des Chaleurs and other stations until December 9, when she sailed to Halifax, N.S., removing on her way thither, the wireless operators at Fame Point, Heath Point and Harrington, whom she landed at Sydney, and arrived at Halifax on December 9.

Landing two lifeboats and two compressors for the agency, she sailed on the 21st in search of Blond Rock gas buoy which had gone adrift. After three days the buoy was sighted and towed to Halifax.

She continued in the buoy service of the Halifax agency, until March 24, when she was hauled on the slip at Dartmouth for repairs.

Her bottom was scraped and painted, a new 'strongback' inserted, hatches, closets and canvas gear repaired and the ship was ready for sea on March 31.

*'Druid.'*

The *Druid* is a single screw steel vessel, built in Paisley, Scotland, in 1902. She is 160 feet long, 30.1 feet wide, 12.5 feet deep; 149 net, 503 gross tonnage and 59 nominal horsepower.

The *Druid* is in command of Captain Michel Gagnon, carries a crew of thirty-one men and is employed in the buoy service from Platon to Father Point, a distance of 185 miles. She has been constantly employed placing and keeping gas and other buoys in position, maintaining beacons and day marks. She towed the *Princess Shoal*, *Red Islet*, *White Island Reef* and *Lower Traverse* lightships to their respective stations in the spring, keeping them in position and supplies during the season of navigation and towed them to Quebec after the close of navigation.

In addition to this she carries workmen to repair lighthouses and supplies required for their maintenance and operation.

She sailed a total distance of 13,910 miles and consumed 2,239 tons of coal during the fiscal year.



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' *Rouville* '

The *Rouville* is a screw wooden vessel, built in Sorel, P.Q., in 1906. She is 125 feet long, 26 feet wide, 14.2 feet deep; 301 gross, 144 net tonnage and 54 horsepower.

She is commanded by Captain Aristide Belanger, carries a crew of twenty men and is employed in the lighthouse construction service of this department.

About the middle of April she was docked for repairs; left dock on May 9, sailed on June 7 to Anticosti island with construction workmen and materials, and on the 22nd to several stations in the Strait of Belle Isle with a gang of construction workmen.

The *Rouville* was sent to Rivière Quelle on October 19, to replace the C.G.S. *Champlain* on the ferry service during the time the latter was being repaired; remained on that ferry until November 12, when she sailed for Anticosti island with construction and lighthouse supplies. She was sent to replace the lower Traverse lightship on December 2, after which she sailed for Louise basin for winter quarters.

' *Champlain* .'

The *Champlain* is a screw steel vessel, built in Paisley, Scotland, in 1904. She is 120 feet long, 30.3 feet wide and 17.6 feet deep; 225 net, 552 gross tonnage and 81 nominal horse-power.

This ice-breaker is under the command of Captain Rene Pelletier, and is employed the year round in the ferry service between Rivière Ouelle wharf on the south shore and Murray bay, St. Irénée and Cap à l'Aigle, on the north shore of St. Lawrence river.

From June 20, to September 17, she made two round trips daily and a total of 388 trips during the year. She failed to cross once in December, seven times in January, fourteen times in February, once in March—twenty-three times in all. Those failures were due to the unusually severe winter causing large quantities of heavy ice to fill the ferry route, which is eleven miles wide.

The *Champlain* has a crew of 26 men, transported 8,295 passengers, 4,758 bags of mail matter, a large quantity of freight; 1,214 meals were served to passengers and the vessel earned \$6,853.20.

The *Champlain* was laid up for repairs at Quebec on May 20; was replaced by the *La Canadienne*, and returned to her route on June 20. She was again laid up on September 20, for a general overhauling in preparation for the winter service; was replaced by the *Rouville* and returned to her route on November 11.

' *Eureka* .'

The *Eureka* is a single screw steel vessel, 94.7 feet long, 22 feet wide, 11.9 feet deep; 170 gross, 91 net tonnage and 40 nominal horsepower.

She was built in Glasgow, Scotland, in 1893, for the Department of Public Works, but is now in the pilotage service of this department. She carries a crew of nineteen men; was in command of Captain F. X. Pouliot up to May 10, when Captain Jean Baptiste Bélanger was placed in command. She left as usual early in the



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spring for Father Point; was employed during the season in embarking and disembarking pilots, for which service she is well adapted, and returned to Quebec on November 30, for necessary repairs.

From September 13, she was under the control of Captain L. A. Demers, superintendent of pilotage, but is now under the supervision of the Quebec agency while in winter quarters.

*'La Canadienne.'*

The *La Canadienne* is a single screw iron steamer, built in Glasgow, Scotland, in 1880. She is 154.3 feet long, 22.7 feet wide, 10.9 deep; 227 net, 372 gross tonnage and 60 horsepower.

This vessel was in the Hydrographic Survey service until the Canadian Government Steamer *Cartier* arrived, when the *La Canadienne's* officers, crew and equipment were transferred to the *Cartier*, and she was sent to replace the *Champlain* on May 10, and remained on that service until June 20, when she was turned over to the Sorel shipyard.

*'Arctic.'*

The *Arctic* is a single screw wooden vessel built in Kiel, Germany, in 1901, and bought by the Department of Marine and Fisheries in 1904. She is 161.4 feet long, 37.2 wide, 20.2 deep; 518 net, 762 gross tonnage and 44 nominal horsepower.

She is under the command of Captain J. E. Bernier, carries a crew of thirty-nine men and is chiefly employed in patrolling the waters of the Arctic regions.

The vessel was repaired, outfitted and provisioned by the Quebec agency and sailed for northern waters on July 7, 1910.

NEW BRUNSWICK AGENCY.

*'Stanley.'*

The *Stanley* is a single screw steel vessel, built in Govan, G.B., in 1888, specially for winter navigation in the Strait of Northumberland. She is 207.8 feet long, 32.0 feet wide, 17.9 feet deep; 394 net, 914 gross tonnage and 300 nominal horse-power.

At the beginning of the fiscal year the *Stanley* was laid up at St. John, N.B., undergoing cleaning, minor repairs and inspection, and left on the 4th on the light-house and buoy service until June 8, when she arrived in Halifax harbour. She remained at Halifax and Dartmouth until July 2, undergoing a thorough cleaning, scraping and painting. The boilers and machinery were overhauled and repaired; some changes were made in her fresh-water service and the electric light system improved. On July 7, the ship, being coaled, provisioned and otherwise fitted for an extended cruise, sailed from North Sydney on July 7 on a hydrographic survey trip to Fort Churchill and Port Nelson under the direction of Captain J. B. Miles, whose report will be found in the annual report of the Deputy Minister of the Naval Service.

She left Churchill on July 27 for Nelson Roads.

On August 8, the Canadian Government steamer *Earl Grey* arrived at Churchill and on August 4, the *Stanley* returned to Sydney. She sailed for Halifax on the 17th, and on the 29th sailed for Sable island; continued in the buoy and lighthouse service;



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arrived at Lahave, February 9, having barques *Langen* and *Carrie Windslow* in tow; left *Langen* in shallow water; towed *Carrie Windslow* to clear water.

•She left on February 14, for Magdalen islands, with 39 bags of mail, got stuck in heavy ice on the 15th. She worked her way to open water on the 17th, and freed the steamer *Bruce* from ice. She was again fast in ice off St. Paul's island on February 24, and remained in that vicinity in heavy ice until March 1. She reached St. John, N.B., on March 6.

While on a trip to Shag harbour, she lost her propeller and was towed to Sand Point by the Canadian Government steamer *Montmagny* and from thence to Halifax, where she remained until the end of the fiscal year.

*'Lansdowne.'*

The *Lansdowne* is a wooden steamer built at Maccan, N.S., in 1884. She is 188.6 feet long, 32.1 feet wide, 15.8 feet deep; 463 net, 680 gross tonnage and 80 nominal horsepower.

She is employed in the lighthouse and buoy service of the New Brunswick agency of this department. She was continually employed in this service during the year, except when laid up for repairs at St. John, from the 4th, to October 23.

## BRITISH COLUMBIA DISTRICT.

*'Quadra.'*

The *Quadra* is a screw, steel vessel built in Paisley, Scotland, in 1891. She is 147.5 feet long, 31.1 feet wide, 13.6 feet deep; 265 net, 573 gross tonnage and 120 horsepower.

The *Quadra* at the beginning of the fiscal year, was employed landing construction materials for Triangle island lighthouse, recharging gas beacons and buoys in waters between Victoria and Port Simpson and continued in those waters until April 18, when she was laid up for repairs. Her decks were put in good order, new donkey boiler installed, cylinders rebored, pistons renewed, and she resumed the buoy service on June 16, from that date until June 25.

She then sailed to Queen Charlotte islands, having on board the chief engineer of the department, who made surveys of sites for new lighthouses. She landed supplies of oil to northern lighthouses, returned on July 29, overhauled and repaired Amphitrite whistling buoy; was laid up for repairs to machinery from the 1st to October 19.

From October 19, to November 1, she was landing construction materials for Nootka lighthouse, and from November 6, to December 19, was landing supplies for wireless stations and establishing new acetylene lights, recharging acetylene beacons and buoys and moving keepers from Green island lighthouse from December 29, to February 20, 1911; and for the balance of the year was establishing new aids to navigation from Victoria to Prince Rupert and lighting gas buoys.

*'Newington.'*

The *Newington* is a screw, iron vessel built in Hull, Great Britain, in 1889, and purchased by the department in 1908. She is 115.3 feet long, 21 feet wide, 11.5 deep; 61 net, 93 tonnage and 58 horsepower.



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She is employed in the lighthouse and buoy service of British Columbia agency of this department.

*'Leebro.'*

The *Leebro* is a steam, screw vessel, built in Victoria, British Columbia, in 1908, and is 123.5 feet long, 28.8 feet wide, 11.1 feet deep; 323 gross, 198 net tonnage and 22 nominal horse-power.

She was chartered from the Leeming Bros., Limited, for construction, lighthouse and buoy services, at the rate of \$135 per day, the company paying for all running expenses.

From the 1st, to April 22, she was on construction work under the direction of the district engineer.

From that date to June 2, was in the buoy and lighthouse supply service between Victoria, and Prince Rupert, was supplying lighthouses till October 12, when she carried men and apparatus to the new lighthouse under construction on Triangle island.

On February 11, her services were dispensed with, but she was again employed on construction work from March 1, to 11, 1911.

PRINCE EDWARD ISLAND DISTRICT.

*'Earl Grey.'*

The *Earl Grey* was built in 1909 at Barrow-in-Furness, Great Britain, by Vickers Sons and Maxim. This vessel is a twin screw steel steamer, 250.0 feet long, 47.7 feet wide and 24.1 feet deep. Her tonnage is 2,357 gross and 930 net, with a displacement of 3,340 tons. She is fitted with two double ended and two single ended boilers, each allowed a pressure of 180 pounds to the square inch, triple expansion engine of 800 nominal or 6,500 indicated horse-power, water ballast space of 101.11 tons, divided into nine water ballast tanks of latest type, holding in all 739½ tons weight of water. The water ballast is used in ice operations to lighten or increase the weight forward or aft.

The vessel was designed for icebreaking and winter service in carrying passengers and freight between Prince Edward Island and the mainland. A description of the *Earl Grey* was given in the Forty-Third Annual Report submitted to parliament in 1910.

On April 1, 1910, the *Earl Grey* made trips from Charlottetown to Pictou, and returned to Charlottetown, making last trip of the season.

Left Charlottetown on the 5th, for Halifax, to go on slip.

Left Halifax for Pictou on June 20.

On July 7, received orders to proceed to Quebec from Pictou.

On July 11, sailed from Pictou for Quebec and returned to Pictou on July 20.

On August 3, left Pictou for Hudson bay. August 22, at Churchill. Returning, arrived at Bay of Islands, Newfoundland, September 5. Arrived at Sydney, C.B., on September 10, to coal. On September 12, sailed from Sydney for Charlottetown and dropped anchor in harbour at 3 p.m.

On September 15, left Pictou to lay up.



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Returned to Charlottetown December 11, to make ready for the winter service.

The *Earl Grey* started on the Charlottetown-Pictou route December 7, 1910, and ran on that route until January 14. On Georgetown-Pictou route until January 20. On Charlottetown-Pictou route for two days—January 20 and 21. On Georgetown-Pictou route on January 23, and 24. On Charlottetown-Pictou route on January 25, and 26. On the Georgetown-Pictou route from January 27, until March 31, 1911, the end of the fiscal year.

From January 27 to February 4, made regular trips. On February 4, broke *Minto* free and took her mails and passengers and baggage on board. On Sunday the 5th made a special trip. Made regular trips on the 6th and 7th. On the 8th, was detained at Georgetown by snow. Made regular trips from the 9th to the 14th. On the 14th, broke the *Minto* free and took her mails and passengers to Pictou, but did not arrive there until 11.25 p.m. on account of heavy weather. On the 15th detained at Pictou, loading coal and freight. Started trip on the 16th, but had to return to Pictou on account of heavy ice, arriving at Pictou at 12.20 p.m. On the 17th, had a hard trip, taking ten hours to make the run. Made regular trip on the 18th. Started special trip on Sunday the 19th, but did not make Georgetown until 8.15 a.m. on the 20th. On the 21st, started out, but had to return to Georgetown, as ice was too heavy. From the 22nd to the 28th, made regular trips. On the 28th, was detained at Pictou all day by snow storms. Made regular trips from March 1 to 6. Started trip on the 6th, but was stuck out in heavy ice all night, making port on the 7th, at 11.20 a.m. Started trip on the 8th, but stuck, not making port until 1.20 p.m. on the 10th. From the 11th to the 21st, made regular trips. On the 21st, tried for Charlottetown, but got stuck outside of Charlottetown harbour by thick ice. Had passengers and mails taken to Charlottetown by teams. Left position at 7 a.m. on the 22nd, and arrived at Pictou at 11.30 a.m. the same day. Made regular trips from March 23 until the end of the fiscal year, March 31, on the Georgetown-Pictou route.

She made 44 round trips, carried 118,532 packages of freight, weighing 5,791 tons.

Her earnings were:—

Receipts from freight.. . . .	\$ 8,497 38
“ “ passengers.. . . .	3,571 75
“ “ berths, 977.. . . .	977 00
“ “ meals, 1,404.. . . .	140 40
	—————
Total earnings.. . . .	\$13,186 53
	—————

‘ *Minto*. ’

The *Minto* is a single screw vessel specially designed for ice-breaking, carrying passengers and freight. She was built in Dundee, Scotland, in 1899, and is 225 feet long, 32.7 feet wide, 18.0 feet deep, 372 net, 1,090 gross tonnage and 216 nominal horse-power, 2,900 indicated.

On April 1, 1910, the *Minto* made trip from Pictou to Charlottetown, and returned to Pictou, April 2, making last trip of the season. Left Pictou on April 2 21—2½



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for the Magdalen islands. Left on return on April 4 with passengers and mail, and arrived at Charlottetown on the same day at 8.30 p.m.

Left Charlottetown on the 5th April at 8.30 a.m., to break the ice barrier in Summerside harbour. Arrived back at Charlottetown at 3 p.m.

On April 6, at the wharf at Charlottetown.

On April 21, *Minto* went to Pictou.

Left Pictou on the 26th April for Gaspé.

On May 6th, *Minto* in Harrington harbour.

Returned to Charlottetown, May 24th.

On May 30th, started on Steam Navigation Company's Service, and continued in this service until June 4th.

Sailed for Halifax on June 7th at 6.30 p.m., for alterations to deck houses, &c. Returned to Charlottetown, June 16th.

On July 4th, the *Minto* received orders to lay up at marine wharf for repairs. Repairs finished September 13th. Sailed for Pictou, September 15th, thence to Halifax, arriving there September 19th. Went on trip to the Bay of Fundy to supply lighthouses. Returned to Halifax, October 14 and laid up for repairs.

The *Minto* left Halifax, December 13 for Charlottetown to make ready for the winter service. Left for Summerside, December 16th and arrived there on the 17th, crossed to Cape Tormentine on the same day. Made two trips between Summerside and Tormentine, but was ordered to Charlottetown, as there were no facilities for handling freight at Tormentine.

The *Minto* arrived at Charlottetown, December 19 and ran on the Charlottetown-Pictou route until January 3rd, when she went on the Georgetown-Pictou route, on which she ran regularly until February 3. Was stuck in the ice from February 4th to the 9th. Then made regular trips to the 13th. Stuck from the 14th to 18th. Sunday the 19th, could not move from Pictou until the 24th, when she left but got caught in the ice and did not make Georgetown until the 27th. Was stuck out in the ice February 28 to March 1, and reached Pictou, March 2. Detained at Pictou on March 3rd. Made Georgetown on the 4th. Stuck in the ice from the 7th to the 10th and made Pictou on the 11th. Made trip on the 13th and 14th. Stuck in the ice on the 15th. Made Georgetown on the 16th, where she remained until the 18th, when she went to Pictou. Made regular trips on the Georgetown-Pictou route until March 31st, 1911, the end of the fiscal year.

She made three round trips, carried 77,196 packages of freight weighing 1,994 tons.

Her earnings were:—

Receipts from freight.. . . . .	\$2,575 82
“ “ passengers.. . . . .	1,809 25
“ “ meals, 714.. . . . .	71 40
“ “ berths.. . . . .	423 00
<hr/>	
Total earnings.. . . . .	\$4,879 47



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*'Brant'*

The *Brant* is a wooden vessel, built in Charlottetown, P.E.I., in 1899. She is 100.4 feet long, 19.1 feet wide, 8.5 feet deep; 58 net and 142 gross tonnage and 33 nominal horsepower.

The crew joined the *Brant* on April 11, she began the placing of Charlottetown harbour buoys on the 14th, the outside buoys on the 16th; took Magdalen island buoy to Pictou on the 17th. She was constantly employed in the lighthouse and buoy service, with the exception of rendering service to fishery inspector Matheson from the 3rd to the 15th of September, and being in dry dock at Pictou for repairs from October 3rd to November 4th.

The earnings of the *Brant* consist of

Placing and lighting Charlottetown buoys.. . . .	\$ 80 00
Towage.. . . .	200 00
Lifting Charlottetown buoys.. . . .	40 00
	<hr/>
Total earnings.. . . .	\$320 00

## THE GREAT LAKES AND GEORGIAN BAY DISTRICT.

*'Simcoe'*

The *Simcoe* is a steel, twin screw vessel of 217 nominal horse power. She was built by Swan, Hunter and Wingham, Richardson, Limited, Wallsend-on-Tyne, England and launched in 1909. She is 180 feet long, 30.2 feet wide, 15.2 deep, 193.8 net, 437.63 gross tonnage.

She is employed in the lighthouse and buoy service on the Great Lakes and Georgian bay.

## UPPER ST. LAWRENCE RIVER AND GREAT LAKES.

*'Scout.'*

The *Scout* is a wooden, single screw steamer built in Cardinal, Ontario, in 1900. She is 103.6 feet long, 25.6 feet wide, 9.2 feet deep; 70 net and 176 gross tonnage and has 27 nominal horsepower.

She is fitted with powerful search and electric lights and was used in the buoy service between Montreal and Kingston during the fiscal year.

*'Reserve.'*

The *Reserve* is a screw, wooden steamer, built in Buffalo, N.Y., in 1884. She is 61.8 feet long, 15.3 wide, 4.8 feet deep; 36 net, 49 gross tonnage and 30 horsepower. She is engaged in sweeping the channel, towing and attending the buoys under the control of the lighthouse depot, Prescott.

*'Lambton.'*

The *Lambton* is a single screw steel vessel of eight-nine horse-power; her hull was built in the government shipyards, Sorel, P.Q., in 1908-9. She is 108 feet long, 25.1 feet wide, 12.7 feet deep; 323 gross and 182 net tonnage.



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Her engines are triple expansion, inverted, direct acting, with working pressure of 170 pounds to the square inch, and built by Fleming & Ferguson, Limited, Paisley, Scotland.

She is in the lighthouse, construction and superintendence services of this department.

## MONTREAL DISTRICT.

'*Maisonneuve.*'

The *Maisonneuve* is a wooden screw steamer, built at Smith's Falls, Ontario, in 1894, and was first called the *Gladys*. She is 75.7 feet long, 9.7 feet wide and 1.3 feet deep; 18 net, 26 gross tonnage, and 9 horsepower.

This steamer is employed in lighthouse work delivering supplies, construction material and maintaining the buoy service on the lower Ottawa river, Rideau river and lakes and the Richelieu river. Her work was begun on April 30 from Sorel, where the vessel had wintered and was put in condition to perform her general service. Buoy service formerly performed under contracts was taken up by this steamer and all buoys were in position by May 25. Besides regular inspection work, materials were conveyed to several localities for construction of lighthouses, beacons and tripods. The lightships on Lake St. Louis were also put in position. All buoys were raised by November 29 and the vessel went into winter quarters at Sorel. The lightships were taken in by the *Hosanna*, which replaced the *Maisonneuve* for that work on December 2.

'*Hosanna.*'

The *Hosanna* is a single screw vessel, built at Sorel, P.Q., in 1893. She is 58.6 feet long, 23 feet wide, 6 feet deep; 59 net, 89 gross tonnage and nineteen horsepower. She is in the lighthouse and buoy service on the St. Lawrence river. The vessel was principally employed in conveying construction material during the season of navigation of 1910 and wintered at Sorel, where she was overhauled and partly rebuilt and made ready for the spring work of 1911.

'*Shamrock.*'

The *Shamrock* is a single screw wooden vessel, built in Québec in 1898. She has been altered and improved, to suit the service in which she is engaged, several times. Her length is 117.3 feet, width 25 feet, depth 9.7 feet; her net tonnage is 161, gross 237 and her horsepower 61 nominal.

The *Shamrock* is employed in the buoy and lighthouse service on the St. Lawrence river between Montreal and Platon. Her work was begun on April 3, 1910, and continued until December 4. The vessel consumed 890 tons of coal and her trips covered 12,004½ miles of run. The *Shamrock* was put in winter quarters at Sorel, repaired and made ready for the spring work of 1911.

'*Alpha.*'

The *Alpha* is a single screw wooden vessel, built at Lévis, P.Q., in 1890. She is 47.5 feet long 12.2 feet wide, 4.9 feet deep; 7 net and 20 gross tonnage. She was employed in the construction branch of the lighthouse and buoy service in the St.



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Lawrence river during 1910 and wintered at Sorel, where she was repaired for spring work for 1911.

*'Vercheres.'*

The *Vercheres* is a tug and was employed in the Montreal district in conveying construction material during 1910 and wintered at Sorel.

## THE FISHERIES PROTECTION.

*'Princess.'*

The *Princess* is a steel, single screw vessel, built in Grangemouth, G.B., in 1896. She is 165 feet long, 26 feet wide, 17.7 feet deep; 252 net, 542 gross tonnage and 90 nominal horsepower.

She is engaged in the fisheries protection service in the gulf and River St. Lawrence.

*'Curlew.'*

The *Curlew* is a steel screw steamer, 116.3 feet long, 19.8 feet wide, 11.3 feet deep; 96 net, 158 gross tonnage and 50 horsepower.

She is engaged in the fisheries protection service in New Brunswick agency.

*'Petrel.'*

The *Petrel* is a steel, screw vessel, built at Owen Sound, Ont., in 1892. She is 116 feet long, 22 feet wide, 10.3 feet deep; 98 net, 192 gross tonnage and 50 nominal horsepower.

She is engaged in the fisheries protection service in the waters of the maritime provinces.

*'Canada.'*

The *Canada* is a steel, screw steamer, built in Barrow-in-Furness in 1904. She is 206 feet long, 25.1 feet wide, 13.3 feet deep; 136 net, 411 gross tonnage and 209 horsepower.

She is employed in the fisheries protection service in the waters of the maritime provinces.

*'Kestrel.'*

The *Kestrel* is a screw, wooden vessel, built at Vancouver, B.C., in 1903, by the Wallace Shipbuilding Company. She is 126 feet long, 24 feet wide, 12.2 feet deep, 188 net, 311 gross tonnage and 59 nominal horsepower.

She is engaged in the fisheries protection service of British Columbia waters.

*'Falcon.'*

The *Falcon* is a screw, wooden steamer built at Port Moody, B.C., in 1902 and was formerly called the *Ruth*. She is 70.7 feet long, 17.8 feet wide, 7.4 feet deep, 48 net, 71 gross tonnage and 14 nominal horsepower.

She is in the fisheries protection service of British Columbia.



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*'Georgia.'*

The *Georgia* is a wooden, screw vessel, built at Victoria, B.C., in 1900. She is 60 feet long, 11.3 feet wide, 5 feet deep, 23 net, 34 gross tonnage and 12 nominal horsepower.

She is in the fisheries protection of British Columbia waters.

*'Lady of the Lake.'*

The *Lady of the Lake* is a single screw wooden vessel, built in Selkirk, Manitoba, in 1907. She is 105 feet long, 18.5 wide, 8.9 feet deep, 155 net, 201 gross tonnage and 13 nominal horsepower.

She is employed in the fisheries service on Lake Winnipeg

*'Alcedo.'*

The *Alcedo* is a single screw vessel, built at Ballard, Washington, U.S.A., in 1905. She is 69.7 feet long, 16.8 feet wide, 7.6 feet deep; 47 net, 70 gross tonnage and 16 nominal horsepower. She is employed in the fisheries protection on the Pacific coast.

*'Restless.'*

The *Restless* is a single screw wooden vessel, built at New Westminster, B.C., in 1906. She is 71 feet long, 17 feet wide, 7 feet deep; 53 net, 76 gross tonnage and 16 nominal horsepower.

She is engaged in the fisheries protection service on the Pacific coast.

*'Hudson.'*

The *Hudson* is a single screw wooden vessel, built at St. John, N.B., in 1903. She is 57.7 feet long, 12.5 feet wide, 4.7 feet deep; 23 net, 34 gross tonnage and 7 nominal horsepower.

She is employed in the fisheries service in New Brunswick waters.

*'Ostrea.'*

The *Ostrea* is a single screw wooden vessel, built in Charlottetown, P.E.I., in 1902. She is 50 feet long, 13 feet wide, 4.5 feet deep, and is employed in the oyster culture service in Prince Edward Island waters.

*'Nelson.'*

The *Nelson* is a wooden steamer, 64 feet long, 13.8 feet wide and 6.6 feet deep; 19.46 gross tonnage and 8.16 nominal horsepower.

*'Thirty-three.'*

*Thirty-three* is a steel boat, 80 feet long, 18.1 feet beam, 8.3 feet deep; 79 gross, 33 net tonnage and 160 indicated horsepower. She is employed in the fisheries service in Nova Scotia.



## SESSIONAL PAPER No. 21

## REPORT OF ICE BOATS AT CAPE TRAVERSE, P.E.I., AND CAPE TORMENTINE, N.B.

This service opened February 15th and closed March 25th. Twenty-nine trips were made from Cape Tormentine and thirty from Cape Traverse.

Passengers carried, 65.

Earnings... .. \$ 152 00

Cost of service... .. 7,132 58

During the year seven ice boats were repaired at Cape Traverse at a cost of \$168. Two ice boats were sent to Canadian Government steamer *Stanley*. Six boats remain at Cape Tormentine. Thirteen boats remain at Cape Traverse.

## BUOYS AND BEACONS.

Buoys as a general thing cause more anxiety than other aids to navigation owing to the probability of displacement by gales and collision of vessels. During the past year no serious accidents have happened to the buoys causing removal during the season of navigation. It must be mentioned, however, that two losses occurred with regard to gas buoys. Serial No. 575 was driven ashore near Centreville, N.S., and proved a total loss, also gas buoy type No. 9½, serial No. 711, was lost from its position at Kyuquot, B.C., and has not been recovered. One No. 11 gas buoy, which broke adrift from Southwest Head, Cape Sable, the previous year, was recovered and repaired; also a small type gas buoy which was lost in Georgian bay in 1906 was recovered by the government steamer *Simcoe*.

The inspection of buoys in the different provinces was carried on as usual. The coast buoys, consisting of automatic whistling, combined gas and whistling buoys, combined gas and bell buoys and gas buoys, whistling buoys, bell buoys and steel can and conical buoys were placed, maintained and removed by government steamers. Lengthy reports of this work have been received from the agents of the department, who report the satisfactory carrying out of this service.

The large number of spar buoys maintained in harbours and channels under contract was still further increased by additions made to mark dangers hitherto unmarked. The most important work in connection with the buoy service was the substitution of gas buoys for many unlighted buoys, and, in many cases, of a higher class of buoy. Navigation has been improved on the coasts of Nova Scotia, New Brunswick, Prince Edward Island, British Columbia, Quebec and the Great Lakes by placing gas buoys in locations where buoys had not formerly been placed. Notices to mariners were issued giving information to shipping.

The St. Lawrence river buoy service was carried out with care, and several changes were made which improved navigation. There are now in the Montreal district 68 gas buoys, 33 iron and 163 spar buoys, all numbered for position and painted red or black, according to port or starboard side of the channel coming up stream; the red on the starboard side and black on the port side.

In the Nova Scotia district there are 30 gas buoys, 17 whistling buoys and 41 bell buoys, besides a number of can and conical buoys, all known as coast buoys.

In the New Brunswick district there are 23 gas buoys, 4 whistling buoys and 7 bell buoys, coast buoys.



In the Prince Edward Island district 6 gas buoys, 2 whistling buoys and 1 bell buoy, with several can and conical buoys, comprise the coast buoys.

In the Quebec district the coast buoys number 37 gas buoys, 1 whistling buoy, 1 bell buoy and a number of can and conical buoys.

In the British Columbia district the number of gas buoys has been increased to 18; there are 2 whistling and 2 bell buoys also in this district, all of which are classed as coast buoys.

In Ontario there are 78 gas buoys, 1 whistling and 3 bell buoys. In this province, on the Great Lakes and upper St. Lawrence river, a large number of gas buoys have been placed owing to the great amount of inland shipping. Of the 78 gas buoys above mentioned 16 were placed in the lower Detroit river as part of the extension of the new aids to navigation in that river now under the control of the department; 20 unlighted spar buoys were also added to improvements in this water way.

In addition to coast and harbour buoys, the day and lighted beacons have been attended to by the department's steamers. In British Columbia there are now 35 acetylene beacons and a number of day beacons. The unwatched beacons, on the coast of British Columbia, were found necessary as the coast extends for so many miles north from Victoria and Vancouver that the placing of buoys in position would involve the maintaining of an undue number of steamers for that purpose alone. The beacons are visited periodically and charged with calcium carbide. In the near future the beacons in the northern parts of the province will be attended from the depot now under construction at Prince Rupert.

The report of the Commissioner of Lights and Buoys, which forms an appendix to this report, contains an enclosure (No. 3) of all gas buoys in operation throughout the Dominion during the fiscal year 1910-11. Other information relating to buoy and beacon service will be found in the same report, and a tabular statement of all aids to navigation that were in operation during the year.

The coast buoys have, during the year, been regularly inspected by officers of the Dominion steamers and superintendents of lights, at the various agencies. The acetylene buoys have been regularly charged with carbide and repairs have been made at the agencies when the buoys have been raised.

Harbour buoys have, as usual, been under inspection of harbour masters whose duty it is to see that the contractors place and maintain the buoys in a proper manner before payment is made. The following list of harbour, river and channel buoys indicates the number, approximately, kept in position during the year.

The total expenditure for buoy service in the different provinces amounted to \$136,180.70, and by provinces as follows:—

Nova Scotia.. . . . .	\$ 13,363 96
Prince Edward Island.. . . . .	3,679 85
New Brunswick.. . . . .	24,944 54
Quebec.. . . . .	12,658 10
Montreal district.. . . . .	47,382 62
Above Montreal.. . . . .	14,245 73
British Columbia.. . . . .	19,905 90
	<hr/>
	\$136,180 70



SESSIONAL PAPER No. 21

LIST of Buoys maintained by the Department of Marine and Fisheries in Canadian Waters in 1910.

ONTARIO DISTRICT.

	No. of Buoys.		No. of Buoys.
Amhersburg, including Bois Blanc..	38	Orillia, 11 bushes..	7
Bay of Quinté (two contracts and Govt. Str..	19	Parry Sound, Govt. Str..	32
Bears Rump..	1	Pembroke..	23
Big Duck island, bell buoy..	1	Pointe au Baril, beacons 15..	4
Blind river..	4	Penetanguishene..	10
Byng inlet..	7	Port Arthur..	12
Campbell rock..	1	Port Rowan..	10
Collingwood..	15	River Thames..	8
Clapperton channel, 1 beacon and..	9	Rondeau..	6
Georgian bay..	13	Sault Ste. Marie..	21
Green shoal, Govt. Str..	1	Sault Ste. Marie, canal approaches..	25
Goderich..	4	Sault Ste. Marie, gas buoys..	5
Hawkesbury, Govt. Str..	16	Seine river and Grassey lake, piles..	30
Kaministiquia..	9	Seine river..	10
Lake Erié and Detroit river..	67	South Bay-Mouth..	4
Lake of the Woods, including bell buoy.	183	Stokes bay..	6
Lake Simcoe..	5	Sturgeon bar, gas buoy..	1
Lake Superior, including bell buoy..	8	Saugeen, river..	9
Little Current..	10	Sturgeon river..	26
Lone Rock, gas and bell buoy..	1	St. Clair river, gas buoy..	1
Lake Timiskaming..	3	Sarnia, gas buoy, 1..	3
Midland..	6	Southampton, gas buoy..	1
Murray Canal and Presqu'île bay..	23	Timagami lake, 4 beacons and..	31
Napanee..	14	Trenton, Govt. Str..	13
Niagara, bell buoy..	1	Victoria island, Lake Superior..	3
North Sisters rock..	4	Waubashene..	37
		Winnipeg river..	13

QUEBEC AND MONTREAL DISTRICT.

Amherst harbour..	8	Lachine rapids..	7
Anse à Gascons..	1	Magdalen islands..	5
Anse à Beaufils..	1	Maria..	1
Barachois de Malbaie..	1	Matane..	2
Bonaventure..	9	Mont Louis..	1
Cap Chat..	1	New Richmond..	3
Cape Cove..	1	North channel, Island of Orleans..	13
Cap Meule..	1	Nouvelle..	2
Carleton Point..	1	Paspébiac..	1
Chicoutimi..	21	Pentecost..	1
Cock Point..	1	Percé..	2
Chaudière basin..	7	Pearl Reef, Mag. Islands, bell buoy..	1
Cape Despair..	1	Port Daniel..	1
Douthes point..	1	Portneuf..	9
English Bay..	3	Restigouche river..	10
Eschourie rock..	1	Restigouche river, gas buoys..	6
Fox river..	1	Richelieu river, balises..	37
Gaspé..	6	Petit Rocher..	2
Grand Entry..	17	Richelieu river, St. Antoine to Chambly	35
Griffin Cove..	1	Richelieu river, above St. Johns...	21
Gros Cap-aux-Os..	1	Rigaud river..	7
House harbour, Magdalen islands..	7	Rivière à la Pipe, Lake St. John..	8
Lake Timiskaming, viz:—		Rivière des Prairies..	10
Opemigon narrows..	4	Ste. Adélaïde de Pabos..	1
Montreal river..	3	Ste. Anne river..	1
North Timiskaming, bushes and..	9	St. Michel..	4
Couvrettes camp..	1	St. Thomas..	8
Browns point..	1	St. Godfroy..	1
Ville Marie channel, bushes..		St. Lawrence river, between Platon and Montreal, gas buoys..	68
Lake St. John—		St. Lawrence river, between Platon and Montreal, unlighted buoys..	196
River Ashapmuchuan..		Serpent reef..	
River Mistassini..		St. Placide, in charge of Govt. Str...	52
River Peribonka..		Timiskaming North..	9
Roberval harbour..		Timiskaming..	13
including beacons..	118	Ville Marie..	1
Lake St. Louis..	20		
Little river east..	1		
Little river west..	1		



LIST of Buoys maintained by the Department of Marine and Fisheries, &c.—*Con.*

QUEBEC AND MONTREAL DISTRICT—*Con.*

	No. of Buoys.		No. of Buoys.
Maintained by Quebec agency, gas buoys including combined.. . . .	37	Maintained by Quebec agency below Quebec bell buoy.. . . .	1
Maintained by Quebec agency, un- lighted buoys, can and conical... .	44	Maintained by Quebec agency below Quebec, whistling buoy.. . . .	1

NEW BRUNSWICK DISTRICT.

Bathurst.. . . .	26	Miscou.. . . .	9
Baie Verte and Port Elgin.. . . .	36	Musquash.. . . .	7
Bay du Vin.. . . .	13	Neguac.. . . .	21
Beaver and Blacks harbour.. . . .	9	Neil harbour.. . . .	1
Black Brook, Miramichi river.. . . .	3	Northeast arm, 24 stakes and.. . .	8
Black Land gully.. . . .	12	Northwest arm, Miramichi.. . . .	10
Buctouche, 34 stakes and.. . . .	22	Northwest arm, 24 stakes and.. . .	8
Buctouche river, bushes and buoys...	260	Ox island, St. John river.. . . .	5
Bartibogue, 12 bushes.. . . .	1	Petit Rocher.. . . .	2
Campobello.. . . .	10	Pisarinco.. . . .	2
Caraquet.. . . .	21	Pokemouche, number of bushes and..	7
Cocagne, stakes, 30 and.. . . .	11	Quaco (maintained by C. G. S.)...	3
Dalhousie and Restigouche.. . . .	11	Richibucto and Albion.. . . .	33
Digdequash.. . . .	5	Richibucto, Rexton and Browns yard.	30
Dipper harbour.. . . .	3	Salmon river.. . . .	15
Dorchester.. . . .	3	Shediac.. . . .	18
Grande Anse.. . . .	4	Shediac, North of island, 20 bushes and	2
Grand Lake.. . . .	32	Shippigan, 17 pickets, 14 bushes and..	20
Grand Manan, 1 spindle and.. . . .	28	St. Andrews... . .	14
Great Shemogue.. . . .	7	Ste-Croix ledge, maintained by C.G.S.	11
Hatfield point, bushes.. . . .		St. John river.. . . .	77
Harvey.. . . .	7	St. Louis, 35 bushes.. . . .	8
Hopewell cape.. . . .	1	St. Simon, bay Caraquet... . .	4
Kouchibouguac and Black river, bushes		Tabusintac.. . . .	20
Little Aldouane, 25 bushes and.. . . .	5	Tracadie, South Gully, 30 bushes and..	5
Lepreau.. . . .	3	Tracadie, 100 bushes, North Gully.. .	11
Letite and Back bay, 1 spindle and...	14	Tynemouth creek.. . . .	3
Little Shemogue, 1 beacon and.. . . .	5	Washademoak, 144 bushes and.. . .	2
Little Shippigan.. . . .	12	Waweig river.. . . .	2
Magaguadavic.. . . .	13	West Isles, 4 spindles and.. . . .	23
Maquapit and French lakes, 20 stakes and.. . . .	4	Whistling 4, gas 23, bell 7, and can and conical buoys are maintained by C. G. steamers.	
Miramichi, 9 winter buoys, 1 lightship and.. . . .	24		

PRINCE EDWARD ISLAND DISTRICT.

Bay Fortune.. . . .	3	Miminegash.. . . .	6
Beach point.. . . .	3	Montague.. . . .	10
Bedeque.. . . .	11	Murray harbour.. . . .	42
Belle river.. . . .	1	New London, 14 stakes and.. . . .	9
Brae harbour.. . . .	5	Orwell and Vernon river, 36 bushes..	6
Brudenell river.. . . .	4	Pinette, number of bushes and.. . . .	5
Cardigan, Lower, 7 summer and 2 winter buoys.. . . .	7	Port Hill.. . . .	12
Cardigan, Upper.. . . .	20	Pownal.. . . .	7
Cascumpec, 12 stakes.. . . .	14	Rollo bay.. . . .	3
Charlottetown, 20 stakes.. . . .	21	Rustico.. . . .	5
Covehead.. . . .	3	Savage harbour.. . . .	4
Crapaud, stakes and.. . . .	6	Souris.. . . .	5
East river (Hillsboro').. . . .	17	St. Peters harbour.. . . .	10
Egmont bay, North, 16 stakes.. . . .	6	Summerside.. . . .	10
Egmont south, 8 stakes and.. . . .	2	Tignish.. . . .	4
Georgetown.. . . .	14	Tracadie.. . . .	7
Goose harbour.. . . .	2	West point.. . . .	1
Grand river, 1 beacon and.. . . .	12	Wood island.. . . .	1
Grand river, lot 14.. . . .	8	Maintained by agency, bell buoys..	1
Indian rocks.. . . .	1	Maintained by agency, conical and can.	8
Little channel.. . . .	3	Maintained by agency, gas.. . . .	6
Malpeque.. . . .	16	Whistling.. . . .	2
		Zephyr rock (N.B. waters) gas only...	1



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LIST of Buoys maintained by the Department of Marine and Fisheries, &c.—*Con.*

## NOVA SCOTIA DISTRICT.

	No. of Buoys.		No. of Buoys.
Advocate harbour.. . . . .	6	Meteghan river.. . . . .	2
Apple river.. . . . .	8	Northport.. . . . .	11
Arichat.. . . . .	20	North Sydney.. . . . .	5
Argyle river and sound.. . . . .	9	Neils harbour.. . . . .	1
Avon river.. . . . .	6	Parrsboro.. . . . .	6
Amherst basin.. . . . .	4	Petit de gras, 6 winter buoys and.. . .	14
Barrington.. . . . .	36	Pictou.. . . . .	6
Bear river.. . . . .	17	Pope Harbour.. . . . .	1
Beaver harbour, 8 winter buoys and..	8	Port Félix.. . . . .	11
Blandford.. . . . .	5	Port Hood.. . . . .	7
Bridgewater.. . . . .	10	Port Le Tour.. . . . .	15
Brulé.. . . . .	5	Port Medway, Govt. Str.. . . . .	9
Canning or Habitant river.. . . . .	6	Port Phillip.. . . . .	12
Canso and St. Andrew passage, 28 winter buoys and.. . . . .	31	Port Morien.. . . . .	2
Cape Negro or Northeast harbour.. .	17	Port Hébert.. . . . .	12
Cariboo.. . . . .	6	Pubnico.. . . . .	21
Chester.. . . . .	25	Pugwash.. . . . .	9
Cheticamp.. . . . .	13	Prospect Lower.. . . . .	10
Chezzetcook and Petpiswick.. . . .	6	Port Mouton.. . . . .	9
Christmas island and Barra strait..	11	Port Bickerton, 3 winter buoys and...	5
Clarks cove, West bay.. . . . .	3	Pennant harbour.. . . . .	9
Clarks harbour.. . . . .	17	Pringles harbour.. . . . .	4
Cockerwit pass and Woods harbour...	20	River John, stakes.. . . . .	3
Cooks cove, Toby cove.. . . . .	4	Roseway.. . . . .	3
Calf Island bay.. . . . .	5	St. Anns.. . . . .	5
Crooked channel.. . . . .	5	St. Mary river, winter buoys and.. .	9
Crow harbour.. . . . .	3	St. Mary river, up to Sherbrooke, 5 winter buoys and.. . . . .	18
D'Escousse and Lennox passage.. . .	27	St. Peters bay, 4 winter buoys and.. .	16
Digby and Annapolis, 5 winter buoys.	15	St. Peters inlet.. . . . .	10
Dover.. . . . .	4	Sambro.. . . . .	12
East Dover.. . . . .	3	Shag harbour.. . . . .	15
East Bay, Bras d'Or.. . . . .	8	Sheet harbour, 5 winter buoys and...	9
Eskasoni.. . . . .	4	Shelburne.. . . . .	25
Fourchu harbour.. . . . .	11	Ship harbour, 5 winter buoys and.. .	11
French Village, St. Margarets bay.. .	5	Ship rock.. . . . .	1
Great Bras d'Or.. . . . .	8	Shulee.. . . . .	8
Gillis point, Boulacet.. . . . .	1	Smiths island.. . . . .	2
Guysborough.. . . . .	3	Sydney.. . . . .	2
Glace bay.. . . . .	4	Shad bay.. . . . .	4
Hay cove.. . . . .	14	Sober island to Ecum Secum.. . . .	21
Harbour au Bouche, 6 stakes.. . . .	4	Spry bay.. . . . .	6
Ingonish, South bay.. . . . .	7	Stoney island.. . . . .	6
Isaacs harbour, 9 winter buoys and..	12	Tangier, 7 winter buoys and.. . . .	4
Indian harbour.. . . . .	4	Tatamagouche, 46 stakes and.. . . .	18
Indian Point, Bar Channel.. . . . .	3	Terrence bay.. . . . .	3
Jeddore, 5 winter buoys and.. . . .	11	Tor bay, 8 winter buoys.. . . . .	19
Jegogan.. . . . .	7	Three fathom harbour.. . . . .	5
Judique.. . . . .	1	Tidnish, stakes and.. . . . .	5
Ketch harbour.. . . . .	6	Tusket (two contracts), 3 spindles.. .	30
L'Ardoise.. . . . .	5	Tancook island.. . . . .	3
Lahave.. . . . .	10	Upper Prospect.. . . . .	4
Little Narrows.. . . . .	10	Wallace.. . . . .	15
Little Dover.. . . . .	9	Walton harbour.. . . . .	1
Little Bras d'Or.. . . . .	2	West bay.. . . . .	5
Liverpool.. . . . .	3	West Dublin and Crooked channel...	13
Lockeport.. . . . .	6	Westport.. . . . .	3
Lunenburg.. . . . .	8	Weymouth.. . . . .	13
Lunenburg, back cove.. . . . .	9	Whitehead, 5 winter buoys and.. . .	9
Lunenburg, middle south.. . . . .	16	West Chezzetcook.. . . . .	7
Louisburg.. . . . .	7	Yarmouth, 38 bushes and.. . . . .	12
Liscombe, 4 winter buoys and.. . . .	6	Maintained by agency—	
Mabou.. . . . .	19	Whistling buoys.. . . . .	15
Mahone bay and Chester, Govt. Str...	12	Bell buoys.. . . . .	42
Main-à-Dieu.. . . . .	6	Steel conical and can buoys... . .	192
Margaree harbour, 2 stakes.. . . .	9	Gas buoys.. . . . .	6
Merigomish.. . . . .	6	Combined gas and bell buoys.. . . .	6
Marie Joseph, 10 winter buoys and...	13	Combined gas and whistling... . .	27
Monsellier, 4 stakes and.. . . . .	6	Light vessels.. . . . .	2
McKinnon harbour.. . . . .	6	Submarine bell signal stations.. . .	3
Musquodoboit.. . . . .	7	Submarine bells attached to gas buoys.	2
Martins brook.. . . . .	6	Spar buoys, about.. . . . .	1,000



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## LISTE of Unlighted Buoys in the Waters of British Columbia.

Name of Buoy.	Position.	Description.
Hesquot..	Fairway harbour ent .....	Steel, whistle, white and black, vertical.
Half-tide rock.....	Hecate passage, Clayoquot sound.....	Platform, ball, red.
North bank.....	" .....	" drum, black.
Vargas rock.....	" .....	" ball, red.
Meares spit.....	Deception channel .....	" black.
Stubbs spit.....	Stubbs spit, .....	" .....
Browning passage .....	West end of pass .....	Spar, red and black bands.
" .....	North shore bank .....	" black.
" .....	Middle bank .....	" red.
Hankin rock.....	Mosquito harbour .....	Platform, red and black.
Round island (north) .....	Round island bank .....	Spar, black.
Round island (south).....	Templar channel .....	" red.
Templar channel.....	Village island .....	Steel, can, drum, black.
Amphitrite point.....	Carolina channel, Barclay scund....	Whistle, steel, red.
Sutton rock.....	Ucluelet harbour .....	Platform, red and black.
Rosedale rock.....	Race rocks, Juan de Fuca st.....	Steel, can, black.
Whale rock.....	Esquimalt harbour .....	Spar, red and black.
Patterson rock.....	" .....	Platform, black,
Canteen.....	" .....	" red.
Channel rock.....	Victoria harbour .....	" ball, black.
Songhees rock.....	" .....	Spar, black.
Hospital rock.....	" .....	Platform, ball, black.
Shoal point.....	" .....	Spar, red.
Victoria inner harbour.....	" .....	" red and black.
Johnstone reef.....	Haro strait .....	Steel, can, black.
Darcy shoal.....	" .....	" .....
Sidney spit (e).....	Sidney channel.....	" .....
Sidney spit (w).....	" .....	" conical, red.
Sidney wharf (s).....	Shoal off Sidney wharf.....	Spar, red.
Sidney wharf (n).....	" .....	" .....
Sidney rock.....	Rock off Sidney wharf.....	Platform, red.
Eastern buoy.....	Pender canal.....	Steel, conical, red.
Western buoy.....	" .....	" black.
Colbourne passage (s).....	Colbourne passage.....	Platform, drum, black.
" (n).....	" .....	" ball, red.
Celia reef.....	Shute passage.....	Steel, conical, red.
Entrance point.....	Satellite channel.....	" .....
Batt rock.....	Ganges harbour.....	" can, black.
Benmohr rock.....	Trincomali channel.....	Platform, ball, black.
Governor rock.....	" .....	" .....
Victoria rock.....	" .....	Steel, can, red and black.
Virago rock.....	Porlier pass.....	Spar, black.
Porlier pass fairway.....	" .....	Bell, steel, black and white.
Grappler reef.....	Houston passage.....	Steel, can, black.
Indian reef.....	Stuart channel.....	" .....
False reef.....	" .....	" can, red and black.
White rock.....	Trincomali channel.....	" conical, red.
South east.....	False narrows.....	Spar, red.
East.....	" .....	" black.
Middle.....	" .....	" red.
West.....	" .....	" black.
Rosenfelt reef.....	Strait of Georgia.....	Steel, can, cage, black.
Gossip reef.....	Active pass.....	Bell, steel, black.
Canoe pass.....	Robert bank.....	Stell, can, black.
Sand heads.....	Channel across Sandheads.....	5 steel, conical, black.
First Narrows.....	South side of Narrows.....	8 " conical, red.
Burnaby shoal.....	Vancouver harbour.....	Spar, red.
Second narrows.....	" .....	" .....
Reef point.....	Strait of Georgia.....	Steel, can, cage, black.
Welcome point.....	Welcome pass.....	Spar, red.
Tattenham ledge.....	" .....	" .....
Snake island reef.....	Strait of Georgia.....	Spar, black.
Horswell reef.....	" .....	Steel, conical, red.
Clark rock.....	Inner channel .....	" .....
Entrance.....	Nanaimo harbour.....	Steel, can, black.
Oyster harbour.....	Stuart channel.....	Platform, black, triangle.
Sawmill point.....	Ladysmith.....	Platform, black.
		" ball, black.



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LIST of Unlighted Buoys in the Waters of British Columbia—*Con.*

Name of Buoy.	Position.	Description.
Boat harbour.....	Stuart channel .....	Steel, conical, red.
Entrance point.....	" " .....	" "
Reynold point.....	" " .....	Spar, red.
Danger rock.....	" " .....	"
Gallows point.....	Nanaimo harbour.....	Platform, ball, red.
South channel.....	" " .....	" diamond, black.
Middle bank.....	" " .....	" ball, red.
South channel (w.).....	" " .....	" diamond, black.
Satellite reef.....	" " .....	" ball, red.
Middle bank (s.w.).....	" " .....	Spar, red.
Middle bank (w.).....	" " .....	"
Carpenter rock.....	" " .....	Platform, ball, black.
Mill stream.....	" " .....	" black.
Passage rock.....	Newcastle Island passage.....	" "
Departure bay reef.....	Departure bay.....	" ball, red.
Dorcas rock.....	Dorcas point.....	Spar, black.
Hornby Wharf reef.....	Lambert channel.....	"
Reef bluff (s.).....	Baynes Sound.....	Steel, conical, triangle.
Reef bluff. (w.).....	" .....	" red.
Village point.....	" .....	" triangle.
Grassy point.....	" .....	Steel, can, black.
Kelp bar (w.).....	" .....	Spar, red.
Kelp bar (e.).....	" .....	"
Atrevida reef.....	Malaspina strait.....	"
North reef .....	North end, Texada island.....	Spar, black.
Shark spit .....	Marina island.....	Steel, conical, red.
Whaleton rock.....	Whaleton Bay.....	Spar, red.
Siwash rock.....	Johnston strait.....	" black.
Ripple reef.....	" " .....	Steel, can, red and black.
Swan rock.....	Addenbrooke point, Fitzhugh sound...	Spar, black.
Walbran rock.....	Telegraph passage.....	"
Bloxam rock.....	" " .....	"
Centre bank.....	Skeena river.....	Steel, nun, red.
Hazel point.....	Middle passage.....	Spar, red.
Kitson bank (1).....	Prince Rupert approach.....	Steel, conical, red.
Kitson bank (2).....	" " .....	" "
South Porpoise.....	" .....	Spar, red.
North " (1).....	" .....	" black.
" " (2).....	" .....	" "
" " (3).....	" .....	" "
Tree bluff.....	Chatham sound.....	Steel, can, drum, black.
Ellinor rock.....	Prince Rupert approach.....	" red and black.
Kestrel rock.....	" .....	Spar, black.
Petrel rock.....	" .....	Can, steel, black, cage.
Tugwell reef .....	Metlakatla .....	Spar, black.
Harbour channel (w.).....	" .....	Platform, black.
Harbour channel (e.).....	" .....	"
Sparrowhawk rock.....	Cunningham passage.....	Steel, can, red and black.
Hankin reefs.....	" " .....	Platform, red.
Dodd passage.....	Port Simpson.....	Spar, black.
Harbour reefs.....	" .....	Steel, conical, red.
Lion point.....	Portland canal.....	" conical.
Salmon river.....	" .....	" can, cage.
Portland canal flats (1).....	" .....	Platform.
" " (2).....	" .....	"

In addition to the above list of unlighted buoys 18 gas buoys are maintained and regularly charged with calcium carbide. These acetylene buoys are similar to the standard acetylene buoys used in eastern waters.



## METEOROLOGICAL SERVICE AND MAGNETIC OBSERVATIONS.

The number of persons in receipt of pay from the Meteorological Service, for various duties performed in connection therewith has been 251. Of this number 25 have been employed in the central office and these together with a few at outside stations, devote their whole time to the work of the service; others are occupied in observing during only a portion of each day and others again, are employed only to attend to the display of storm signals when notified.

Since the issue of the last report new stations have been opened in the different provinces, viz., in British Columbia, four stations of class 2, three stations of class 3; in Alberta, five stations of class 2, fourteen stations of class 3; in Saskatchewan, thirteen stations of class 2, six stations of class 3; in Keewatin, two stations of class 1; in Manitoba, three stations of class 2; in Ontario, one station of class 1, four stations of class 2; in Quebec, two stations of class 2, three stations of class 3; in Nova Scotia, one station of class 1, one station of class 2; in Prince Edward Island, one station of class 2; in Newfoundland, one station of class 1.

There are now in the Dominion, Newfoundland and Bermuda 469 stations from which either daily, weekly or monthly meteorological reports are received. The work at the majority of these stations is performed voluntarily by the observers who have been supplied with instruments and appliances. Much of the knowledge of the climatology of Canada is due to the zealous efforts of the observers.

Stations reporting by telegraph to the central office for the weather map have been increased and Vancouver and Prince Rupert, in British Columbia, have been substituted for New Westminster and Port Simpson.

The storm signal display stations now number 99 and at seven other ports, signal masts are in course of erection.

During the year, many of the stations were inspected by officials from the central office, and localities visited with a view of the extension of the service. Several stations on the Mackenzie river were visited, also Norway House, station, Keewatin and York Factory and Fort Churchill, Hudson Bay.

The new central meteorological office is admirably adapted for the requirements of the service.

The climatological report for 1908, is in the hands of the printer and the manuscript for 1909, is ready for printing. The other publications including the daily weather map, monthly weather review and map, have been issued regularly. Forecasts to the number of 14,945 were issued from the central office, of these 86.1 per cent were verified. In the Pacific coast division, 4,823 forecasts were issued, of which, 83.2 were verified; 1,690 storm warnings were issued to ports on the Great Lakes and Atlantic coast, 91.1 were verified. Warnings and forecasts were regularly issued to Newfoundland.

The stations organized in 1908, in the valley of the Mackenzie river, together with those on the shores of Hudson bay, make it possible to draw the isobars with fair accuracy, to the most northerly confines of Canada.

The time exchanges between Toronto, Quebec, Montreal and St. John, N.B., have been carried on. Signals continue to be automatically repeated from land telegraph



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to the wireless station at Camperdown, N.S., and these signals are picked up when ships are far from land.

The equatorial telescope at the central station has been chiefly used in obtaining maps of the sun's surface. Photograph work was tried in May and June of Halley's comet, and one or two good pictures were obtained.

The report of the Superintendent of the Meteorological and Magnetic Service forms an appendix to this report.

## WRECKING PLANT.

The yearly subsidies were paid to contractors when they became due and proof shown of the maintenance of the plant in readiness to render assistance, in cases of casualties to vessels. The amount of the subsidy to each contractor is \$10,000 per annum, paid semi-annually.

The contracts were made for a period of five years with each contractor. For the lower St. Lawrence, the contract was made with Messrs. Geo. T. Davie & Sons, Lewis, P.Q., headquarters of the salvage plant at Quebec; for the maritime provinces with the Dominion Coal Company, headquarters of the salvage plant, North Sydney, C.B.; for British Columbia, the British Columbia Salvage Company, headquarters for the salvage plant, Victoria.

The following is a list of vessels assisted or salved by the plant of the Dominion Coal Company, Limited, during 1910-11—

April 27.—Sent tug *Douglas H. Thomas* in search of small sail boat containing two men reported off Flint island; boat being in disabled condition and storm approaching.

May 4.—Sent tug *Douglas H. Thomas* to the assistance of SS. *Ellen* which steamer grounded on south bar near the entrance of Sydney harbour, but came off at high tide without assistance. Tug stood by in case her services were required.

May 30.—Tug *Douglas H. Thomas* pulled stranded schooner *Ida M.* off the shore in Great Bras D'Or lake.

June 1.—Tugs *Douglas H. Thomas* and *C. M. Crauchan* ashore at Baulene and all stood by ready for service for some considerable time.

June 6.—Tug *Douglas H. Thomas* was despatched to Langly Doons, Mnq., to render assistance to schooner *Winnifred*, ashore there.

June 8.—Sent tug *C. M. Winch* to assistance of SS. *Heathcote* reported ashore near Sydney Mines.

June 19.—Sent tug *Douglas H. Thomas* and SS. *Louisburg* to assistance of stranded steamer *Heimdal* at Sable Island.

June 22.—Offered services of SS. *Cacouna* to stranded steamer *Prinz Oscar*, ashore at Point Armour in Gulf of St. Lawrence.

June 28.—Tug *C. M. Winch* pulled loaded steamer *Sygna* off shore in Sydney harbour.

September 14.—Tug *Douglas H. Thomas* pulled schooner *Nyanza* off rocks near Cranberry Head.

September 23.—Tug *Douglas H. Thomas* rendered assistance to stranded schooner *Myrtle V. Hopkins* near Cranberry Head.



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September 29.—SS. *Louisburg* picked up two dories off Glace Bay belonging to fishing vessel *Shamrock* and delivered them to owners.

October 3.—Tug *Douglas H. Thomas* salved schooner *Bessie* in Sydney harbour after later had parted her moorings in storm and was drifting in helpless condition.

October 8.—Sent *Douglas H. Thomas* to assistance of stranded schooner *Roseway* in Strawberry cove, Anticosti.

October 22.—Tug *Douglas H. Thomas* was sent to assistance of trawler *Nordcaper*, which was flying signals of distress off Lowpoint lighthouse, and towed her safely to port.

November 3.—Tug *Douglas H. Thomas* was sent to assistance of stranded schooner *Cora* on Petries ledges, off Sydney harbour.

November 4.—Tugs *Douglas H. Thomas* and *C. M. Winch* and steamer *Cape Breton* pulled off steamer *Harlow*, ashore in Sydney harbour.

November 5.—Tug *Douglas H. Thomas* pulled schooner *Baulene* off rocks on Petries ledges.

November 29.—Received report of steamer off Glace Bay flying signals of distress. *Douglas H. Thomas* was despatched to her assistance.

November 29.—Tug *Douglas H. Thomas* towed disabled schooner *Georgi Campbell* from Port Aux Basque to North Sydney.

January 1.—Tug *Douglas H. Thomas* towed disabled schooner *J. B. Hodgkins* from Bay St. George to North Sydney.

January 29.—Tug *Douglas H. Thomas* was despatched to assistance of schooner *Theodore Roosevelt*, which was flying signals of distress off Sydney harbour, and towed her to North Sydney.

March 24.—Tug *Douglas H. Thomas* and steamer *Louisburg* were sent to the assistance of passenger steamer *Bruce*, which stranded at Main-a-dieu. Passengers were taken off by SS. *Louisburg* and brought to Louisburg. Mails and baggage were salved by *Douglas H. Thomas*.

The services rendered by the plant of Messrs. George T. Davie & Sons—

Str. *Murray Bay*, SS. *Prinz Oscar*, C.G.S. *Gulnare*, Construction Dredge Company's SS. *General Wolfe* and Messrs. M. P. & J. T. Davis' *Caisson*.

The services rendered by the British Columbia Salvage Company, Limited during 1910-11—

May, 18-25, tug *Tartar* sunk at Lund, B.C., raised vessel and brought her to Esquimalt.

May 15.—*John L. Card*, raising vessel sunk in Victoria harbour.

August 5.—Tug *Sadie*. Salving vessel from rocks at Beechy Head.

August 26 to September 11.—*Princess May* ashore in Lynn canal. Raising vessel and bringing to Esquimalt.

October 21.—SS. *Bangor* ashore Bedford island. Going to her assistance and standing by.

November 18-23.—Tug *Hope*. Raising vessel sunk in Nanaimo harbour.

December 2.—*Northwestern* ashore at San Juan island. Raising vessel and taking to Seattle.

December 19.—*Prince George* ashore off northern entrance Vancouver narrows. Going to her assistance and towing off.



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January 26-27.—SS. *Tees* rendering assistance to vessel ashore near Wreck bay, West coast.

February 3.—*Titania* rendering assistance to vessel ashore at Turn Point and bringing to Victoria.

January 26.—*Cottage City*. Going to assistance of vessel ashore near Cape Mudge, Valdez island.

## MONTREAL HARBOUR COMMISSIONERS.

In the year 1910 a greater amount of work was done than in any year since the inception of harbour improvements in the port of Montreal.

Amongst the work begun, completed, and put in operation was the construction of a high level railway extending from Victoria pier to Molson's creek. Twelve subway approaches to the harbour have been built and are open to the public, replacing twelve level crossings. Grain elevator No. 2, to have a storage capacity of 2,000,000 bushels, is being erected by the harbour commissioners under the superintendence of Mr. John S. Metcalf. This work it is expected will be completed by the 1st of May, 1912.

The enlargement of Victoria pier, and the creation of a market basin for river craft has been advanced. The basin will give a low level quay length of 4,800 lineal feet on the inside and five ocean steamers, berths, built to high level, on the outside.

Preliminary arrangements have been made with Vickers Sons & Maxim, Limited, for a floating dry dock at Molson's creek in the harbour. At this point it is intended to create an area of land of thirty acres with a protected basin for the dock and the establishment, if necessary, of a high level coal handling terminal in the eastern part of the city.

The permanent concrete wharf extension, planned for the Dominion Coal Company at Hochelaga, has been completed. The usual harbour dredging and considerable constructional work, has been done by the engineering department of the commissioners.

The Canadian Northern Steamship Company inaugurated a steamship service between Montreal and Bristol, England, during the year. The steamers *Royal George* and *Royal Edward*, 12,000 tons each, have kept up a successful fortnightly service between the two ports mentioned.

The *Saturnia* of the Donaldson line was put on the Glasgow route and the Canadian Pacific Railway Company inaugurated the New Zealand-Australia service; these additions to the passenger and freight service of the port have been eminently satisfactory.

The season of navigation, of the St. Lawrence river route, was the driest in many years and the depth of water reached its lowest stage earlier than usual, but the steamers of all lines navigated the river to Montreal day and night successfully until the month of November.

The report of the harbour commissioners contains references to special visits of the Governor General of Canada, Lord Brassey and a delegation of the Chamber of Commerce of Bristol, England, at different periods, who independently inspected



the port and gained a knowledge of what has been accomplished towards making Montreal a great seaport.

The harbour commissioners have been able to record general improvements in vessel accommodation, appliances for loading and discharging freight and for warehousing, delivering, and railway transfer of goods.

The traffic department shows an increase of 1,500 cars of freight loaded and discharged directly into vessels and sheds, over the previous year. This increase took place notwithstanding the heavy decrease in apple shipments of 384,000 barrels, representing about 2,000 cars, as compared with 1909. The high level tracks under construction were sufficiently advanced to allow them to be used. Two new locomotives were purchased, making five in all in use, by the traffic department. A building for the accommodation of the locomotives was under construction, and the building of the high level tracks interfered with the handling of freight, but, as the construction is now complete, additional business will be derived from the traffic between the several railway terminals.

The total number of miles of railway track on the harbour commissioners property is 28.865 miles. This railway system connects with the Canadian Pacific, Grand Trunk and Canadian Northern terminals, and freight is conveyed, from one railway to another and from each railway to vessels at the wharves.

Elevator No. 1 was fully utilized, its service was rendered more valuable by the construction of a second marine tower. The total quantity of grain elevated amounted to 14,906,569 bushels, the greatest since its construction and being 3,000,000 bushels in excess of 1909. The conveyor equipment from the elevator to the sheds and into vessels was finished during the year. The great advantage of these conveyors has been shown by the facility with which grain can be loaded into compartments of vessels, whilst loading of package freight, or discharging of cargo, can be carried on at the same time and thus give despatch to the loading and discharging of vessels.

The greatest quantity of grain in store at the elevator at any one time was 1,021,107 bushels. In addition to the operations at the elevator, a number of floating elevators, purchased from the Montreal Grain Elevator Company, were used to facilitate the grain movements by the commissioners. The floating grain elevators are placed between grain vessels unloading and the vessels receiving cargo.

The sheds number 14 and consist of a ground floor and upper story. Elevators have been put in use during the year to raise articles in quantities from the lower floor to the upper one for storing purposes. The freight handling hoists from holds of vessels have been working with satisfaction and are effective. Freight can be delivered to cars or wagons, when not stored in the sheds, by means of transporters with cantilever arms. The arms are long enough to extend out of the sheds on the harbour side and take cargo from the hatches of ships. The transporters can be travelled on carriages to the other side of the sheds, and articles lowered to wagons or railroad cars. Freight is also placed upon the floors of the sheds when hoisted, or taken from the floors and lowered into the vessels.

The demand for more shed room has led to the consideration of building four (4) more on the Tarte pier in the east end of the city.



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The electric power for lighting the sheds and wharves has been obtained from the Montreal Light, Heat and Power Company, and unlimited power has always been available.

Dredging, filling in and excavation have been carried on extensively; new areas of land have been added to the property of the commissioners; the channels have been widened at certain points. In the scheme of extensions, attention was given to enlarging the central part of the harbour, thereby giving more accommodation.

In connection with the new plant purchased is a powerful dredge and a powerful ice-breaking tug for winter operations.

Fire protection has not been neglected, but an equipment provided and maintained by the commissioners is available in case of fire on board vessels or at any part of the harbour property.

The life-saving appliances have been increased and the older portions made more effective.

The seventy-five (75) ton floating crane has justified its purchase by the amount of heavy lifting to which it has been applied.

The extent of the wharfs at the end of 1910 has been stated in the report to be as follows:—

For vessels drawing 30 feet and over.. . . .	3.540 miles
For vessels drawing 25 to 27½ feet.. . . .	3.000 miles
	<hr/>
	6.540 miles
For vessels drawing 20 feet and under.. . . .	0.594 miles
	<hr/>
Total wharf accommodation.. . . .	7.132 miles

The receipts and disbursements in connection with revenue account, as is shown by the statement of the secretary of the harbour commissioners, shows a balance of revenue over disbursements. The revenue was also in excess of 1909, and is as follows for the calendar year:—

	1909.	1910.
Wharfage on imports.. . . .	\$208,927 55	\$258,996 20
Wharfage on exports.. . . .	97,733 00	94,077 34
Wharfage on local traffic.. . . .	75,636 58	86,798 76
Switching cars.. . . .	104,266 43	124,801 79
Rentals, harbour, sheds.. . . .	101,500 00	100,599 97
Grain elevator, No. 1.. . . .	65,987 90	92,428 55
Rentals, harbour tracks and properties.. . .	31,351 70	34,057 29
Floating crane.. . . .	2,369 00	3,067 32
	<hr/>	<hr/>
	\$687,772 16	\$794,827 22

A new source of revenue sprung from the operations of the floating elevators purchased from the Montreal Grain Elevator Company. This revenue amounted to \$41,287.95, which added to the above revenue, makes a total of \$836,115.17. The disbursements charged to revenue account amounted to \$812,668.92.



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The amount disbursed on capital account was \$1,454,926.93, divided as follows:—

High level railway.. . . . .	\$ 406,409 95
Grain Elavator, No. 2.. . . . .	360,441 53
New Victoria pier and market basin.. . . . .	269,017 90
Improvements, eastern section.. . . . .	137,495 72
Floating elevators, plant account.. . . . .	100,000 00
Sundry items.. . . . .	181,561 83
	<hr/>
	\$1,454,926 93

The total debenture indebtedness of the corporation is \$14,292,000, of which \$1,572,000, is to the public, and \$12,420,000 to the Dominion government, upon which the average rate of interest is 3.21 per cent.

The following statement of shipping tonnage which arrived in the port of Montreal is taken from the tabular statement of the harbour master for 1910.

	Number.	Tonnage.
Transatlantic ships.. . . . .	411	1,658,414
Vessels which arrived from the Lower St. Lawrence and maritime provinces.. . . . .	336	574,808
Vessels from inland ports.. . . . .	13,636	4,327,799
	<hr/>	<hr/>
Total.. . . . .	14,383	6,561,021

The increase of tonnage over the previous year was 1,503,114 tons.  
Navigation opened on April 1, 1910, and closed December 7.

TORONTO HARBOUR COMMISSION.

Toronto harbour was clear of ice on March 20, 1910, which was seven days earlier than it opened in 1909. Navigation was closed for 81 days or three days longer than in the previous year. The last vessel before the closing of navigation arrived in the harbour on December 5.

Three thousand four hundred and two vessels of 1,582,961 registered tonnage entered during the season of 1910, an increase of 461 vessels and 102,669 registered tons over last year's shipping.

The harbour buoys were placed in position on March 26, five days earlier than last year; and raised on December 8, or seven days earlier than last year.

The lights at the Queen's wharf were lighted, for the first time on March 28, and were discontinued on December 8.

Much dredging was done. A new cut was dredged to Haney & Miller's new dock and dredging done at the Alexander Brown Milling Company's wharf slip.

The storm signals were resumed on April 5 and continued to be of much aid to navigators, mostly all the predictions concerning approaching storms being verified.

Very extensive repairs were made on the eastern entrance to the harbour, an area of 32 x 34 feet on the north and 101 x 40 feet on the south end of the east pier was rebuilt of concrete.



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Good progress has been made on the improvements to the western entrance to the harbour and should be completed during the coming year.

The minimum depth of water in the channel is now 18 feet low water.

The receipts for the fiscal year were \$14,891.71; the expenditure, \$13,417.51, leaving a balance of \$1,474.20 for the year.

A detailed report of the harbour commissioners will be found in the supplement to the Annual Report for 1910.

## THREE RIVERS HARBOUR COMMISSION.

The Harbour Commission of Three Rivers is composed of:—P. A. Drolet, Esq., chairman; Joseph L. Fortin, Esq.; L. P. Normand, Esq.; L. E. Dufresne, Esq.; J. A. Peltier, Esq.; George Balcer, secretary.

The wharf accommodation extends from the west bank of the St. Maurice river to the ice-breaker, a distance of about 5,500 feet. Within this distance there are several wharfs; the St. Maurice Lumber Company's wharf used for local and inland waters traffic, and with one berth for ocean-going steamers; the harbour commissioners wharf with accommodation of 1,350 feet, the depth of water at the front being from 30 to 35 feet, and reserved exclusively for ocean vessels. The commissioners have another wharf, 490 feet in length with 25 feet depth of water. This is used for passenger and freight lines.

The Richelieu and Ontario Navigation Company's wharf is between the two last mentioned, is used by the steamers of that company.

A private wharf lies between the 300 foot one of the commissioners' and the government new dock, which is 2,000 feet long, built of concrete and intended exclusively for ocean traffic, the water along its front being 30 feet deep.

The commissioners' wharf is from 200 to 275 feet wide and the government wharf, from 200 to 300 feet, the area of the latter being over 500,000 square feet.

The old Grand Trunk wharf and the one at Cap de la Magdaleine also accommodates large freight and passenger traffic.

A railway line runs along the water front and branches connect the port with manufacturing centres.

The port is also directly connected with the most important trunk lines of the country, and facilities for loading and unloading freight from cars to the vessels and from the vessels to the cars have been provided.

On the south side of the harbour there is no railway siding.

The port is favourably situated for shipping, the channel being from 30 to 50 feet deep along the wharfs with very little current and a roadstead from 1,200 to 1,500 feet wide.

Fifty-three steam vessels, with a registered tonnage of 113,000 tons, registered at the port during the season of navigation—a gain of six vessels and 13,000 tons over last year's shipping. This increase is in ocean shipping; the number of inland vessels decreased from 1,179 in 1909 to 772 in 1910. This decline was largely due to the great quantity of pulp wood shipped from the province of Quebec in 1909.

This large export was due to the knowledge that the Quebec legislature would pass a law prohibiting the export of pulpwood from Crown lands. This law, now in force, has stimulated the pulp industry at Three Rivers and surrounding districts.



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The import of coal from the maritime provinces continues to increase notwithstanding the fact that many factories are using electric power. The harbour commissioners report that the last year was the most prosperous in the history of the port.

The total receipts for the year were \$31,683.95; the total expenditure for the year was \$17,877.10.

A full report of the harbour commissioners will be found in supplement No. 1 to the report of 1910.

#### NORTH SYDNEY, N.S., HARBOUR COMMISSION.

The members of the commission are:—Messrs. Peter J. M. McDonald, M. W. Lawlor and William Hackett, secretary.

The total number of vessels which registered at the port of North Sydney during the year was 2,200, with a total registered tonnage of 1,434,014 tons, a decrease of 25 vessels, but increase of 43,395 tons on the previous year's shipping.

The Dominion Coal Company shipped from their pier at North Sydney 1,743,031 tons coal. The Nova Scotia Steel and Coal Company, Limited, shipped 529,487 tons coal and 144,891 tons ore.

The Dominion Iron and Steel Company, Limited, received 947,000 tons iron ore, limestone and other material, and shipped 63,000 tons of steel rails during the year.

The receipts amount to \$6,564.35; the expenditure to \$3,297.47, leaving a balance on hand of \$3,266.88.

A detailed report will be found in supplement No. 1 to Marine Report for 1910.

#### PICTOU, N.S., HARBOUR COMMISSION.

The Harbour Commission is composed of Messrs. J. R. Brown, W. A. McIntosh, J. C. Reid and D. A. Barry, commissioners, and Henry G. Ives, secretary-treasurer.

The number of vessels entered was 913, with a total tonnage of 212,676 tons.

The revenue for the year amounted to \$1,175.60; the expenditure to \$265.85, and the balance in the Bank of Nova Scotia is \$909.75.

A full account of the transactions of the commission will be found in supplement No. 1 to the Marine Report for 1910.

#### BELLEVILLE, ONT., HARBOUR COMMISSION.

The importation for the year was 14,589 tons coal, 1,125 tons merchandise, 20 M laths, 164,000 ft. lumber, 51 cords wood, 70 bbls. oil and 2½ tons hay.

The exports were 13 M shingles, 1,121 tons merchandise and 1,754 boxes cheese.

The harbour dues amounted to \$1,872.89; disbursements, \$23.95; balance on hand, \$1,848.94.

The total receipts of the harbour commissioners for the year was \$2,282.73; the expenditure for the same period \$2,231.90. The amount deposited to the credit of the commissioners was \$50.83.

The total amount deposited to the credit of the sinking fund was \$2,803.84.



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## QUEBEC HARBOUR COMMISSION.

New landing sheds were erected on the tidal harbour and river fronts of the pier to replace the buildings on Point-à-Carcy pier, which were destroyed by fire on October 16, 1909. A new shed, No. 19, was erected; a larger shed was erected to replace No. 21, increasing the floor area by 5,280 sq. feet, and the wharves where burnt were cleared and repaired. Two new tracks were laid from the car ferry to the Dalhousie street lines, and a building erected on the cross wall containing the commissioners stores and a police station.

The custom house pond has been dredged to a depth of 15 feet at low water for the purpose of establishing a pontoon berth for the accommodation of coasting vessels; a new carriage roadway has been completed, and a new railway line, 5,400 feet long, has been laid along the western end of the 'embarkment.' The two roads have added 87,000 square feet to the ground used for coal storage.

Shed No. 20 was enlarged, railway lines between the shed and dock front put in good order and additional lights installed. All the railways of the commission were put in thorough repair, the docks repaired and a Strauss Bascule bridge to open the entrance to the wet dock will soon be constructed.

The cross wall drawbridge was operated for the first time, the past season on April 2, and closed for the last time on December 7.

Navigation was open in the harbour all winter. The *Montcalm* left the custom house basin for the lower St. Lawrence on March 3, and returned on the 6th. This steamer, in conjunction with the *Lady Grey* succeeded in opening navigation between Quebec and Montreal on April 3.

The ice in the river St. Charles broke up on April 9.

Six hundred and three ocean-going steamers besides a large number of steam barges and schooners, berthed in the Louise docks and at the breakwater and Point-a-Carcy wharfs.

The last passenger and mail steamer the SS. *Montcalm* arrived in the harbour on November 2, and left on November 27.

Three hundred and forty-seven vessels of a total tonnage of 1,578,135 tons register entered the different docks and landed 283,413 tons of cargoes.

Ninety-five vessels of a total tonnage of 341,633 tons register and cargoes of 26,525 tons left the harbour during the season of navigation.

The increase of vessels in 1910 over 1909 was 33 vessels, 257,692 registered tonnage and 68,846 tons freight inwards and 6 vessels, 246,627 tons register and 5,279 tons freight outwards.

Thirty thousand eight hundred and three R.S. lumber and timber were shipped in 1910, against 28,741 in 1909 or an increase of 2,062 R.S. lumber and timber.

Lower ports steamers, 2,861 tons, cargo shipped 10,065 tons, 157,487 bushels of grain and 148,060 railway ties were landed.

Ten thousand four hundred and ninety-seven first-class, 43,963 second and 107,870 third class passengers were landed during the year ending December 31, 1910.

The total revenue for 1909 was \$102,165.84; 1910 was \$121,036.84, an increase of \$18,871.



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The total revenue for the year was \$121,036.84; the expenditure, \$117,007.16 and the surplus \$4,029.68.

### MONTREAL PORT WARDEN.

The river St. Lawrence was officially declared to be free from ice on April 4, being 15 days earlier than last year.

The Longueuil ferry began regular service on April 1, 1910.

The Dominion government steamer *Lady Grey* arrived in the port of Montreal on April 3, and the *Wobun* passed Quebec for Three Rivers and the *Kronprinz Olaf* arrived from Sydney on April 11.

On May 17, the SS. *Manchester Mariner* passed outward through the Straits of Belle Isle, which is considered the earliest on record.

The wireless telegraph stations in the gulf, and the numerous signal stations in the river St. Lawrence, have greatly facilitated early navigation through the Straits of Belle Isle.

A fortnightly service has been inaugurated between Montreal and Avonmouth, Great Britain, by the Canadian Northern Railway's 'Royal Line.'

The *Royal Edward* and the *Royal George* make fast and regular trips on this route, during the season of navigation.

The year has been remarkably clear of accidents to shipping between Montreal and Quebec, only one serious accident having occurred.

Three hundred and ninety-nine transatlantic or foreign sea-going vessels, with a total tonnage of 1,638,581 tons, reported at the Port Warden's office during the year, against 367 vessels with 1,425,173 tons last season, an increase of 32 vessels and 213,408 tons.

Three hundred and thirty-three vessels of all classes, with a tonnage of 570,705 tons entered from the lower ports, against 292 vessels and 468,422 tons in the previous year, an increase of 41 vessels and 102,283 tons, 99 vessels of all classes with a tonnage of 73,681 tons, against 109 vessels of 71,655 tons, a decrease of 10 vessels and an increase of 2,026 tons over last year, cleared from Montreal to the lower ports.

The total revenue of the port warden's office for the year was \$27,888.93 and the expenditure \$11,407.64, leaving a balance of \$16,481.29.

### WRECKS AND CASUALTIES.

Two hundred and thirty-nine sea-going vessels were reported as wrecked, partially wrecked, suffered serious or slight damages to ship, rigging or cargoes.

The tonnage in this way affected was 147,595, the total damage \$864,010 and the number of lives lost 85. Of the total number of vessels, 58 were total wrecks with a loss of \$481,300, while 57 vessels were very slightly, or not damaged, having in most instances been stranded in storms and escaped without any material harm. One hundred and twenty-four vessels were partially wrecked with a loss of \$382,710.

Twenty vessels were reported as totally wrecked in inland waters, with a loss of \$480,400; 42 were partially wrecked with a loss of \$225,170 and 20 vessels slightly damaged, or in some instances incurring no loss. The number of vessels affected was, therefore 82 vessels of 63,970 tons, loss \$705,570 and 16 lives.



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The report of wrecks and casualties for the year ending June 30, 1910, but a few vessels wrecked in 1908 are recorded in the last report, which will be found in appendix No. 44 of Supplement No. 1 to this report.

## PILOTAGE.

Reports for the calendar year 1910, have been received from 21 pilotage authorities. They are published in supplement No. 1 to this report and contain information respecting the number of pilots, the number of vessels piloted and the financial transactions.

The number of pilots in active service according to those returns is 314 and the amount earned \$417,412.96. Deducted from the earnings are the expenses of each pilotage authority for transacting the business of the pilotage district and for decayed pilotage funds where these funds exist.

Name.	No. of pilots.	Gross receipts.
Buctouche, N.B.. . . . .	6	\$ 163 50
Caraquet, N.B... . . . .	6	288 80
Halifax, N.S.. . . . .	29	34,780 22
Miramichi, N.B... . . . .	20	11,208 67
Montreal, P.Q.. . . . .	50	81,868 83
Northport, N.S.. . . . .	2	107 50
Nanaimo, B.C... . . . .	7	34,027 05
New Westminster, B.C.. . . . .	1	906 78
Parrsboro, N.S... . . . .	5	558 00
Pugwash, N.S.. . . . .	7	785 00
Quebec, P.Q.. . . . .	84	130,228 14
Restigouche, N.B.. . . . .	7	5,458 61
Richibucto, N.B... . . . .	5	
Richmond, N.S.. . . . .	3	
Shediac, N.B.. . . . .	3	763 81
St. Ann's, N.S.. . . . .	4	544 00
St. John, N.B.. . . . .	23	37,895 62
Sydney, N.S... . . . .	35	32,067 00
Vancouver, B.C.. . . . .	6	29,223 37
Victoria, B.C... . . . .	4	14,054 98
Westport, N.S... . . . .	7	2,483 08
	<hr/>	<hr/>
	314	\$417,412 96

The Montreal and Quebec Pilotage districts are under the direct control of this department and under the supervision of Captain L. A. Demers, general superintendent of pilotage.

According to his report, the 50 pilots made 882 trips inward and 833 outward and received as fees \$81,868.83. The amount earned by tour-de-rôle pilots was \$11,526.46. Seven hundred and nineteen sea-going vessels, 310 lake steamers, 34



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schooners and 12 barges, tugs and steam yachts, reported at the pilotage office during the year. Eleven pilots were pensioned, one was dismissed and one resigned.

The number of pilots in active service for and below Quebec is 84; apprentice pilots, 14; pilots pensioned, 6; the number of pilotages effected was 1,841, and the total earnings \$130,228.14.

### SICK AND DISTRESSED MARINERS.

Under the provisions of the Canada Shipping Act, chapter 113, Part V, s. 384 R.S., dues of 1½ cents per ton, registered tonnage, are levied on every vessel entering any port of the provinces of Quebec, Nova Scotia, New Brunswick, Prince Edward Island and British Columbia. The money thus collected forms the 'Sick Mariners Fund.' Vessels of the burden of 100 tons and less pay duty once in each calendar year, and vessels of more than 100 tons, registered tonnage, three times in each year.

The officers and seamen of all fishing vessels not registered in Canada do not pay sick mariners dues nor participate in the benefits accruing therefrom, but such vessels registered in Canada may pay dues and participate in the benefits, and if of more than 100 tons only for the voyage at the beginning of which payment has been made, but such vessels shall enjoy the same rights and benefits as are enjoyed by vessels which pay dues and are not engaged in fishing.

The Sick Mariners Act does not apply to the province of Ontario, so no dues are collected from vessels in that province.

At the port of Quebec sick mariners are cared for at the Jeffery Hale and the Hotel Dieu hospitals at a per diem allowance of \$1.50 per seaman, including medical attendance and board.

At the port of Montreal sick seamen are cared for at the General hospital and at the Notre Dame hospital—the charge per diem at each institution being \$1.50 per seaman, including board and medical attendance.

At the port of Chicoutimi, sick seamen are cared for at the hospital of St. Valier at a per diem charge, including board and medical attendance, of \$1.20 per seaman.

Marine hospitals are maintained in Louisburg, Yarmouth, Pictou, Sydney and Lunenburg in the province of Nova Scotia, and the sick seamen at Halifax, N.S., are cared for in Victoria General hospital at \$1.50, including board and medical attendance, per diem for each seaman.

At Charlottetown, Prince Edward Island, sick seamen are cared for at the Charlottetown and the Prince Edward Island hospitals under arrangement made by the department with the managers of those institutions for a per diem charge per man of \$1.50 including board and medical attendance.

The marine hospital of Victoria, British Columbia, has a medical superintendent and a keeper, each of whom receives \$600 per annum. The keeper receives \$5 per week for board and attendance of each seaman.

At Vancouver, sick seamen are attended at the Royal Columbian hospital at a cost of \$1 per day for each seaman.

At Nanaimo, B.C., sick mariners are treated at the Nanaimo hospital at \$1 per day each for board, nursing and lodging, the medical officer receiving a salary of \$600 per annum.



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At St. John, N.B., sick seamen are attended at the General Public Commissioners' hospital at a cost of \$1.50 per day for each seaman.

A marine hospital is operated and maintained by the department at Douglastown, N.B. The medical officer receives a salary of \$400 and the keeper \$250 per annum.

Where no hospital is maintained in any part of the maritime provinces, Quebec and British Columbia, the collectors of customs are authorized to care for sick seamen entitled to receive the benefits of the Act.

Statement of receipts and expenditure on account of 'Sick and Distressed Seamen' from the fiscal year 1900 to 1910, both inclusive.

Year.	Receipts.	Expenditure.
1900.. . . . .	\$59,971 84	\$32,743 30
1901.. . . . .	59,783 34	34,944 93
1902.. . . . .	65,853 83	51,827 12
1903.. . . . .	64,851 55	48,151 48
1904.. . . . .	61,778 29	50,801 78
1905.. . . . .	58,372 34	51,000 18
1906.. . . . .	60,183 90	50,120 42
1907.. . . . .	44,704 59	34,362 11
1908.. . . . .	69,364 45	59,957 92
1909.. . . . .	53,732 31	66,349 26
1910.. . . . .	55,567 41	54,859 50

The total amount of salaries paid to medical officers during the year 1910 was \$14,540.32. The number of seamen treated was 3,234, being 395 less than last year, and the number of days treatment given was 26,084. The total amount spent for services of physicians, not including salaries, and travelling expenses, drugs and board, was \$33,939.

The report of C. H. Godin, M.D., medical superintendent of marine hospitals, forms an appendix to this report.

## SHIPPING AND DISCHARGE OF SEAMEN.

The irregularity with which shipping masters send in returns renders it impossible to make a correct statement of the number of seamen shipped, discharged, the amounts annually collected or a comparison of each year's transactions.

The statistics by provinces of the shipping masters' offices which have sent in returns for the year ending December 31, 1910, are as follows:—

	Shipped. Seamen	Discharged. Seamen	Collected. Fees
Quebec.. . . . .	3,689	1,710	\$ 2,372 50
New Brunswick.. . . . .	1,995	850	1,256 25
Nova Scotia.. . . . .	8,234	5,988	5,605 50
Prince Edward Island.. . . . .	238	44	156 20
British Columbia.. . . . .	2,579	2,477	2,220 80
Total.. . . . .	16,735	11,069	\$11,611 25



A full statement of shipping master's transactions at each port from which returns have been received, for the year ending December 31, 1910, are contained in supplement No. 1 to the Annual Report for 1910.

### MERCHANT SHIPPING.

A supplement to the 'List of Shipping' is published every month, and those affecting the list, and issued up to date, are included in that volume.

The total number of vessels remaining on the 'Register' book of the Dominion on December 31, 1910, was 7,904, measuring 750,929 tons, being an increase of 136 vessels and 32,376 tons as compared with 1909. Of this number the steamers on the register book were 3,332, with a gross tonnage of 554,974. Assuming the average value to be \$30 per net registered ton, the value of Canadian registered tonnage on December 31, 1910, was \$22,527,870.

The number of new vessels built and registered in the Dominion of Canada during last year was 294, measuring 22,283 tons net register. Estimating the value of the new tonnage at \$45 per ton, the value of new vessels amounts to \$1,002,735.

Two hundred and forty-seven vessels were removed from the register book during the year.

It is estimated 40,070 men and boys were employed during the year 1910 on ships registered in Canada.

### MARINE SCHOOLS.

Seven marine schools have been maintained during the year ending March 31, 1911, which, with the number of lectures and total daily attendance at each, are as follows:—

Halifax, N.S., 32 lectures, 249 total daily attendance.

Yarmouth, N.S., 30 lectures, 260 total daily attendance.

Collingwood, Ont., 29 lectures, 296 total daily attendance.

Midland, Ont., 13 lectures, 120 total daily attendance.

Victoria, B.C., 35 lectures, 645 total daily attendance.

North Sydney, N.S., 32 lectures, 182 total daily attendance.

Vancouver, B.C., 34 lectures, 933 total daily attendance.

Two hundred and five lectures have thus been delivered, with a total daily attendance of 2,685, being one lecture less than delivered last year and 13 more in total attendance.

The late Captain Toge delivered lectures at Montreal, Quebec, Three Rivers and Sorel, which were fairly well attended, but only Victoria and Vancouver, B.C., fully realize the value of the means for acquiring knowledge the department places at the disposal of mariners.

Full particulars are contained in Captain Lindsay's report which forms an appendix to this report.



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## MASTERS AND MATES.

Examinations for all grades of certificates of masters and mates are held at thirteen offices throughout Canada, the names of which, with that of examiners and other particulars, will be found in Captain Lindsay's report which forms an appendix to this report.

Four hundred and sixty-four examinations for the various grades of certificates were held; 364 candidates passed and 100 failed. Only eight men presented themselves for sight test.

During the year ending March 31, 1910, 13 sea-going certificates of competency have been issued to masters, 11 to mates and 26 to second mates; 193 inland and coasting certificates of competency to masters and 113 to mates have been issued. Of the 193 masters' certificates of this class, 26 were temporary, and the total receipts were \$4,314.50 and expenditure \$6,662.52.

During the year ending March 31, 1911, 19 sea-going certificates of competency were issued to masters, 12 to mates and 14 to second mates; 74 coasting certificates of competency to masters, 50 to mates; 36 inland waters certificates of competency to masters and 40 to mates; 1 master's coasting certificate of service and 22 masters' temporary certificates were issued.

The total receipts amount to \$4,446.61 and expenditure to \$5,801.62.

Full details respecting masters' and mates' certificates are contained in an appendix to this report.

## CORRESPONDENCE AND RECORD BRANCH.

The records branch of the department embraces the receiving and despatching of letters. The letters and telegrams received are registered, numbered, stamped with date received, indexed, placed on files, and the files charged and distributed to the officers who take action upon the letters and telegrams. Copies of letters are placed upon the files, and the files examined to ascertain if all letters have been answered or acknowledged, and then they are discharged and placed in receptacles.

The registering of letters consists of entering the number of the file and a brief synopsis of the subject of the letter; the indexing includes pages of personal names in a book, and the card system, locality names, subjects and vessel names. The number of communications received during the year was 44,922.

The letters and telegrams despatched are copied in letter press books and indexed. The number of letters despatched during the year was 33,000. The increase in the numbers of letters received and despatched during the last ten years shows the growth of the work of the department and consequent increase of staff, as a whole, including the records branch. An establishment book is maintained in this branch in which the names of all employees of the department are recorded.

The letters received in 1901 numbered 18,741 and despatched 13,000, while in the past year 44,922 were received and 33,000 despatched.

There has been a slight falling off in the number of letters received in the department during the past year, due to the transfer of several branches to the Naval Service Department.



## INSPECTION OF LIVE STOCK SHIPMENTS.

The inspectors of live stock shipments have reported regularly and furnished a statement of cattle, sheep, horses, hay and grain shipped to the United Kingdom from the ports of Montreal and St. John. N.B.

It will be seen that the total number of cattle and sheep shipped was less than last year and much less than previous years, going as far back as 1902-3.

The shipments from Montreal were as follows: Cattle, 72,555; sheep, 248, and 497 horses.

The shipments from St. John, N.B., were 3,301 cattle, 2,508 sheep, 19 horses.

The statement of live stock shipments forms an appendix to this report.

## STEAMBOAT INSPECTION.

All passenger steamboats over five tons gross are tonnage are subject to inspection yearly of boilers, machinery, hulls and equipment according to the rules of steamboat inspection.

Every freight steamer of more than one hundred and fifty tons gross is subject to inspection yearly, according to the rules of steamboat inspection for boilers, machinery and hulls.

Freight steamers, tug boats and steamers used for fishing purposes, under one hundred and fifty tons and more than five tons gross tonnage, are subject to inspection of boilers and machinery, according to the rules of steamboat inspection.

At present there is no fee charged for inspection except upon steamers registered elsewhere than in Canada when engaged in carrying passengers between Canadian ports and not holding a British Board of Trade certificate. The fee is then, in Canada, eight cents on the gross tonnage of such foreign steamer.

Canadian registered vessels inspected during the fiscal year numbered 1,812; gross tonnage, 466,799. Vessels inspected, but not registered in the Dominion, numbered 159; gross tonnage, 213,830 tons. The amount of fees collected for inspection was \$3,944.70.

The total expenditure in connection with inspection amounted to \$42,818.47, but part of this expenditure was for inspection of Dominion steamers and fog-alarms. The report of the chairman of steamboat inspection forms an appendix to this report.

## STEAMBOAT INSPECTORS.

Edward Adams, Chairman.. . . .	Ottawa, Ont.
J. A. Thomson.. . . .	Victoria, B.C.
H. G. Robinson.. . . .	Vancouver, B.C.
A. E. Hopper.. . . .	Vancouver, B.C.
W. J. Cullum.. . . .	Victoria, B.C.
G. P. Phillips.. . . .	Kenora, Ont.
J. Dodds.. . . .	Toronto, Ont.
J. B. Stewart.. . . .	Toronto, Ont.
E. W. McKean.. . . .	Collingwood, Ont.



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T. P. Thompson.. . . .	Kingston, Ont.
W. Laurie.. . . .	Montreal, Que.
L. Arpin.. . . .	Montreal, Que.
F. X. Hamelin.. . . .	Sorel, Que.
N. A. Currie.. . . .	Halifax, N.S.
C. E. Dalton.. . . .	St. John, N.B.
J. H. Fontaine.. . . .	Quebec, Que.

## HULL INSPECTORS.

J. C. Kinghorn.. . . .	Victoria, B.C.
W. Evans.. . . .	Toronto, Ont.
M. R. Davis.. . . .	Kingston, Ont.
P. Duclos.. . . .	Quebec, Que.
C. W. Seely.. . . .	Halifax, N.S.
I. J. Olive.. . . .	St. John, N.B.
S. D. Andrews.. . . .	Collingwood, Ont.

## WORKSHOPS.

Workshops are maintained by the department at Sorel, Halifax, Quebec, Prescott, and Parry Sound. The workshops at Sorel are of course the most important as construction of vessels is carried on at the shipyard as well as the making of repairs to vessels. Several separate buildings have from time to time been erected for the proper division and performance of the work. The buildings consist mainly of the office, draughting room and general store, boiler shop, machine shop and power house for electric plant, blacksmith shop, joiner shop, boat building and general woodwork shop, sawmill including planing machine and moulding machinery, pattern shop and vessel moulds and sail loft, tinsmith shop, building for storing vessel's equipment and stables. In addition, there is a fire equipment, a narrow gauge railway with sheds, also a railway track from the Sorel railway station for freight cars.

At the Dominion lighthouse depot, Prescott, the shops are mostly within the main building. It contains the main office, draughting room, photometric room where tests are made of lighthouse apparatus, carpenter shop, pattern shop, blacksmith shop, vapour lamp and erecting department, paint shop, shipping department and general store. The machine shop and acetylene department are each in separate buildings. The number of workshops at Quebec is seven, viz., the boiler shop and forge, machine shop, tinsmith and plumber shop, carpenter and boat shop, joiner shop, paint shop and sail loft. Sixteen vessels wintered in Louise basin. These were overhauled and repaired during the winter and all buoys requiring repairs were attended to and painted.

At Halifax, the workshops are connected with the dockyard and are mainly a blacksmith shop, carpenter and boat shop, machine shop, paint shop and tinsmith shop. Extensive repairs are made to buoys and moorings and repairs to the machinery of the Dominion steamers.



2 GEORGE V., A. 1912

At Parry Sound, the depot is mainly used for storing acetylene, gas buoys and lighthouse tanks and charging them with acetylene. The buoys and tanks are painted and prepared for placing in the spring; a few mechanics are consequently employed at this depot.

### SABLE ISLAND HUMANE INSTITUTION.

The report of the Superintendent of Sable Island Humane Institution was made to the agent of the department at Halifax and forwarded to the department.

The report is brief and contains, practically, information of the same nature as the report of 1909.

Sable Island has for many years had the reputation of being one of the most dangerous places in the north Atlantic for approaching vessels, but in recent years no wrecks have occurred in the immediate vicinity of the island until the past year when the Norwegian steamship *Heundal* struck on the south side, four miles east of No. 1 station and became a total wreck, the crew was saved.

The practice of patrolling the island was kept up during the year of 1910. Repairs were made to buildings in order to maintain the humane institution in a proper and serviceable state.

Owing to the season being wet all kinds of agricultural products yielded well, particularly potatoes, hay and pasturage were good.

At the close of the season, the live stock on the island consisted of 65 head of cattle, 30 trained horses, 1 imported stallion and 4 imported mares, 200 wild ponies and 6 hogs. The shipments from the island were 36 wild ponies, 116 barrels of cranberries and some hides.

The population consists of the superintendent, keepers of light stations, Marconi wireless stations, boatmen at the lifesaving stations and their families, numbering in all, 38.

The report of the superintendent forms an appendix to this report.

### SIGNAL SERVICE.

The signal service of Canada as it is now established was carried on in 1910 as usual. The superintendent of the signal service at Quebec has under his supervision a number of stations in the Gulf and River St. Lawrence and Strait of Belle Isle. From these stations daily reports are received concerning the weather and movements of vessels. Ice conditions are also noted and reported in the season, when moving ice forms a danger to navigation. Bulletins were issued at Quebec to vessel owners, agents and others interested in shipping, and telephoned to the Board of Trade, Montreal Shipping Federation and others. The quarantine station at Grosse Isle and the pilot station at Father Point, were daily informed of the movements of inward bound vessels.

The telephone service in connection with signal service extends from Montréal to Quebec, over a rented line and from Quebec to Crane island over the public service line. It has proven of great value to the dredging fleet and to pilots, who are kept informed of movements of vessels, doing away with the former uncertainty of the whereabouts of vessels and preventing delays to both vessels and pilots.



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Wireless telegraph messages were sent and received from the different wireless stations relating to weather conditions and movements of steamers.

The signal service includes the signalling of vessels passing certain points where signal officers are stationed. At the Halifax citadel the number of vessels of different kinds signalled was 1,399, and the superintendent has furnished a classified report of the vessels, principally steamers. Reports have also been received from the signal officers at Cape Race, Newfoundland, and in Nova Scotia from St. Pauls island, and Westport, Brier island. These reports contain information respecting the kind of service rendered in some cases, and in others, details of signal made of a certain vessel named. In New Brunswick, the light-keeper on Partridge island signals vessels bound for St. John and on the north side of the province signal stations exist at Point Lepreaux, Escuminac and Chatham, the last place is in the Miramichi river.

The reports received by the department on the signal service will be found in an appendix of this report.

## LIFE-SAVING SERVICE.

The life-saving service of the department, in the past, has included a number of stations supplied with life-saving apparatus, considered sufficient to render ordinary assistance to vessels ashore or needing help, when in distress, along our shores. The boats are principally Beebe-McClellan self-bailing surf boats and in a few instances Dobbins self-righting and self-bailing boats. But the latter were found to be too heavy for the number of men generally available for volunteer crews, who are only paid for annual drills and when assistance is rendered. The Beebe-McClellan surf boats have in late years been supplied the stations.

Total number of stations maintained is.. . . . .	37
Total number of boats is.. . . . .	35
Total number of crews is.. . . . .	225

## LEGISLATION.

The following Acts were passed and assented to during the Third Session, Eleventh Parliament, 1-2 George V., viz.:—

An Act to amend and consolidate the Acts relating to the Harbour of Toronto.

An Act to amend the Water-Carriage of Goods.

A. JOHNSTON.

*Deputy Minister of Marine and Fisheries.*



## APPENDIX No. 1.

ANNUAL REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT  
OF MARINE AND FISHERIES.

The Deputy Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit the following report of the work done in the several services under the supervision of this office during the twelve months ended March 31, 1911.

This embraces work done at departmental headquarters on the construction of lighthouses, lightships and fog-alarms, the supervision of construction and repairs of lifeboats; the administration of the vote for the removal of wrecks and obstructions in navigable waters; tidal and current surveys; and the publication, examination and correction of hydrographic charts; construction of and repairs to fish hatcheries and refrigerators; engineering points in connection with the construction and maintenance of fish-passes; supervision of surveys of oyster beds; examination of applications for foreshore, wharf and other water lots as they affect the interests of navigation; preparation and publication of notices to mariners and hydrographic notes, &c.

Since the issue of the last report the Tidal and Current Survey work under the supervision of Dr. W. Bell Dawson, has been transferred to the Department of Naval Affairs.

As the work was done in close connection with my branch, I wish to say a word of praise of Dr. Dawson, and the great work he accomplished under this department in systematizing his survey work and obtaining as quickly as possible results of immediate benefit to mariners. I am certain that his work will bear comparison with the best work done in any country, and that, thanks to him, Canada has reason to be proud of the accuracy, both theoretical and practical, of her tidal and current work.

## STAFF.

The following changes have been made during the year in the staff of my office:—

Mr. L. E. Côté, appointed chief draughtsman of the department on April 1, 1909, took charge only after the work he was engaged in the Commissioner of Lights' Branch was put in such condition that it could be left and consequently began his duties in my branch during the present fiscal year.

Mr. F. P. Jennings, assistant engineer, has been sent to Prince Rupert, to superintend the construction of a wharf and departmental depot at that place, and has been on the ground since February 27, 1911.

Mr. A. Fortey, formerly employed in my office has been appointed temporarily to act as resident engineer for the Ontario district, and is now in charge of construction work on the upper lakes.

Mr. F. J. Maguire, formerly stenographer in my office, has been transferred to the Montreal agency of the department for similar work.

Mr. E. J. Wight was appointed draughtsman on February 14, 1911, at a salary of \$800 per annum.

Mr. W. H. Carson was appointed an assistant engineer on July 2, 1910, at a salary of \$1,200 per annum.

Mr. G. W. York was appointed a messenger in the draughting room on August 9, 1910, at a salary of \$500 per annum.



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Miss Mary Edwards, stenographer, left the service on April 1, 1910, and was replaced by Miss Mabel McBratney, who has been appointed permanently at a salary of \$500 per annum.

Miss M. E. Thoburn was appointed a stenographer December 16, 1910, at a salary of \$500 per annum.

## PERSONAL INSPECTIONS.

I have been able to make quite a number of personal inspections during the past year, the most important being as follows:—

On the opening of navigation in 1910, I visited Lake Erie, inspecting all the lights on the Canadian shore, continuing on to Lake Superior where inspections were made of sites for proposed lighthouses at Michipicoten island and Ile Parisienne. The new tower on Caribou island was also inspected.

On May 13, the coast between the Restigouche river and Chatham was inspected, the Charlottetown agency visited, and various points on the Quebec coast of the St. Lawrence river touched while returning.

The whole of July, with portions of June and August, was spent in British Columbia where extended examinations were made of points suggested for proposed aids to navigation, and various other matters attended to which had accumulated since my previous visit.

On August 29, the whole coast of the Bay of Fundy was inspected and the agencies at Halifax and Charlottetown visited.

On October 7, the Ottawa river was visited and a week spent in locating ranges and buoys in connection with new channels being laid out.

In December, the Detroit river was visited in connection with important changes in the system of lighting and buoying.

In January, important matters in the Winnipeg district were taken up and throughout the year a number of short trips were taken to various points, principally involving the location of new aids and routine business required in connection with departmental duties.

## WEST COAST TRAILS.

The work on the West Coast Trail was continued during the season of 1910, and a temporary life-saving station was established at the head of Pachena bay for the winter season of 1910-11. Arrangements were made for utilizing the service of the life-saving crew in the upkeep of the trail during the winter. The work was pushed on to Shelter Bight and the trail can now be used to carry life-saving apparatus to many points on the coast including the spot where the *Valentia* was wrecked. The work was carried out under the personal supervision of Mr. H. C. Killeen, the resident engineer of the department at Victoria, B.C.

## OFFICE WORK.

A large proportion of the work done by the general staff of the branch consists in the construction, repair or improvement of light buildings, fog-alarms, beacons and other aids to navigation. Full details of the work done in this connection during the past twelve months are contained in a separate report which is attached hereto. (Inclosure A.)

Plans and specifications for all important new buildings and repairs, new vessels, &c., are made or approved in this office.

The following table indicates the work done in the draughting office during the twelve months ended March 31, 1911:—



Description of Work.	Plans Designed.	Plans Received.	Copies Made.
Lighthouse towers and dwellings.....	46	7	230
Fog alarm buildings .....	5	3	26
Details .....	95	32	300
Wharfs, piers, &c. ....	4	2	11
Outbuildings.....	15	2	72
Machinery.....	.....	1	2
Lanterns und illum nating apparatus..	3	10	23
Buoys and apparatus.,.....	.....	.....	59
Day beacons.....	5	1	19
Steamers.....	.....	1	7
Land surveys .....	5	118	140
Plans relating to water lot applications.....	.....	260	17
Miscellaneous.. ...	27	303	413
	205	740	1,319

Total plans for twelve months from April 1, 1910, to March 31, 1911. ....	2,264
Charts received and recorded. ....	216
Charts received and entered in chart books.....	26
Photographs received and recorded.....	200
Specifications written.....	41
Notices to mariners issued (comprising 348 subjects).....	132

PUBLICATIONS.

The work of preparing and issuing notices to mariners continues to be heavy and urgent; during the past twelve months 132 notices, covering 348 subjects, have been published. Amongst important notices, involving considerable labour in compilation, and representing useful work done in the department, are:—

- (1) A complete list and renumbering of buoys in Collingwod harbour and Parry Sound, Ontario.
- (2) Results of two years' tidal observations on Pacific coast.
- (3) Complete list of buoys from Point Pelee to head of Fighting island, Detroit river, Ontario.

During the past twelve months notices relating to waters outside of Canada were issued, covering 12 items relating to Newfoundland and Labrador, 3 items relating to the Atlantic, 14 to the inland, and 11 to the Pacific waters of the United States, as well as 3 notices referring to transatlantic subjects. No attempt is made to issue a complete synopsis of British or foreign notices, but merely to republish items likely to be of immediate interest to Canadian vessels, or to vessels leaving Canadian ports, for the more important or frequented foreign ports.

CLASSIFICATION OF LIGHTKEEPERS' SALARIES.

Every light and fog alarm station in the Dominion was, on April 1, 1908, brought under the operation of a schedule classification, full details of which were given in my report for 1909-10. As already stated in that report, the results have been most gratifying, giving employees an assurance of stability which they did not previously possess, and relieving the department from constant demands for increases of salary.

REMOVAL OF OBSTRUCTIONS.

During the past twelve months the following work has been done, under the annual appropriation for the removal of wrecks and obstructions:—

- (1) The schooner *Ariel* and a scow, which sank in the harbour of Owen Sound, Ontario, were removed by the Georgian Bay Shipbuilding & Wrecking Co., Ltd., of Midland, Ont., the contract price being \$2,100.



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(2) The steamer *Canada*, which sank in the harbour of Colpoys bay, Ontario, was removed by the Lemcke Tug Co., Ltd., of Lions Head, Ont., the contract price being \$350.

(3) The tug *Lulu Rae*, which sank at the entrance to the Kaministiquia river, Fort William, Ontario, was removed by the Stevedore Co., Ltd., of Fort William, Ont., the contract price being \$600.

## HYDROGRAPHIC WORK.

The hydrographic surveys previously under the control of this department, in charge of Mr. W. J. Stewart, are now administered by the Naval Department.

As, however, most of the information contained in the Canadian notices to mariners relates to work done in this department it has not been thought desirable to transfer their preparation. Therefore any hydrographic notes reaching the department are prepared for publication in this office, and embodied in notices to mariners.

In preparing these, special attention has been paid to publishing all information obtainable respecting the hydrography of Canada, and the fullest possible sailing directions have been appended to all descriptions of aids to navigation so as to increase the value of the notices.

The usual annual edition of the list of lights and fog-alarms in the Dominion, corrected up to April 1, 1910, was issued during the summer, the reprints of the portions relating to the Great Lakes and British Columbia bound separately for the use of mariners in those waters. This has now become so bulky that it ought to be permanently divided into three portions, and printed only in that form.

In last year's report I again drew attention to the fact that no adequate lists of buoys in the eastern waters of Canada were published, and I now repeat my assertion that in the interests of safe navigation, complete lists of buoys, beacons and day marks should be prepared and published, and kept up to date by annual revisions.

I regret that the pressure of other duties prevents me from extending this useful work to cover all Canadian waters, and that with our existing staffs the work cannot be overtaken.

## ICE-BREAKING.

Two contracts were entered into, during the present season, for ice-breaking in Thunder bay and vicinity:—

(1) The Canadian Towing and Wrecking Company, Limited, of Port Arthur, contracted with the department to keep the harbours of Port Arthur, Fort William and West Fort William open for navigation until December 17, 1910, and to open those harbours in the spring of 1911 in time to admit upward bound vessels to enter the harbours as soon as the Sault Ste. Marie canal should be open for navigation. The contract price was \$30,000, which included an agreement to remove all light-keepers in the vicinity from their stations at the close of navigation in 1910.

(2) A contract was entered into with the Midland Towing and Wrecking Company, Limited, of Midland, to keep the harbours of Midland, Tiffin and Victoria and the approaches thereto free from ice, from open water in the Georgian bay, until the close of navigation of 1910, for \$5,500.

In both of the above cases the work was satisfactorily done, under the supervision of the harbour masters of the respective ports.

Respectfully submitted,

WM. P. ANDERSON, M. INST. C.E.,  
Chief Engineer.

CHIEF ENGINEER'S OFFICE,

Department of Marine and Fisheries,  
Ottawa, Canada, April 1, 1911.



(INCLOSURE A.)

DETAILED REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT OF MARINE AND FISHERIES ON CONSTRUCTION, ESTABLISHMENT AND IMPROVEMENT OF LIGHTHOUSES AND OTHER AIDS TO NAVIGATION, UP TO MARCH 31, 1911.

To the Deputy Minister,  
Department of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit a detailed report on work done in the construction and establishment of aids to navigation, for the twelve months ending March 31, 1911.

NOVA SCOTIA.

NEW AIDS TO NAVIGATION.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Caribou channel.	Establishment of two pairs of range beacons.....	Day's labour....	G. Y. Grant.....	28 30
Freels, cape....	Completion of the erection of a wooden fog alarm building, dwelling house and outbuildings; and the installation of a 3-inch duplicate diaphone plant. (The above work was started in 1909-10: see Annual Report for that year.).....	" .....	J. L. Colter .....	5,643 04

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Arichat.....	Changes to lantern deck.....	Day's labour....	S. Samson.....	250 13
Cross island....	(1) Provision of the machinery for a 3-inch duplicate diaphone plant, with 12-H.P. engines..	Furnished under general contract .....	Can. Fog Signal Co., Toronto, Ont....	4,700 00
	(2) Erection of a wooden fog alarm building.....	Contract.....	Jas. W. Smith, Lunenburg, N.S.	1,945 00
	(3) Additions to fog alarm building.....	Day's labour....	E. G. Geizer.. }	676 61
	(4) Installing above machinery.	" .....	R. Summers.. }	
Canso .....	New wooden lantern deck.....	" .....	G. Y. Grant.. ..	189 88
Harbour island..	Lighthouse tower repairs.....	" .....	S. C. McMillan. ....	370 38
North, cape. ...	(1) Erection of a new reinforced steel concrete tower. (The old Cape Race tower was taken down in sections, and shipped to the site.)..... (The above work was started in 1909-10; see Annual Report for that year.).....	" .....	G. Y. Grant.....	1,718 21
	(2) Installation of heating coils in fog alarm engine room.....	" .....		
Pomquet island..	Light house tower repairs.....	" .....	G. Y. Grant.....	148 58
Parrsboro.....	Protection work repairs .....	" .....	G. Y. Grant... ..	141 68



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NOVA SCOTIA—*Continued.*CHANGES AND IMPROVEMENTS IN EXISTING AIDS—*Continued.*

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Race, cape . . .	Coal shed repairs.....	Day's labour.....	A. W. Faulkner .....	601 43
Sable, cape.....	Erection of a new wooden double dwelling house for light-keeper; also a wooden coal shed .....	" .....	E. Geizer .....	2,986 63
Sharp, cape.....	Dwelling house repairs.....	" .....	G. Y. Grant . . . . .	1,111 87
St. Paul island..	Installation of the new 3-inch diaphone plant, purchased in 1909-10 .....	" .....	T. Phillips.....	1 271 46
Wedge island...	Protection work repairs .....	" .....	J. Mills.....	1,976 69

## NEW BRUNSWICK.

## NEW AIDS TO NAVIGATION.

Glenwood. . . .	Establishment of a 20-foot pole, hoisting a Chance anchor lens lantern, on Belyea wharf, St. John River.....	Day's labour.....	H. B. Belyea.....	74 86
Pompey Ledge..	Erection of a concrete beacon, 11 feet high, surmounted by a pyramid of open steel framework.. ..	" .....	J. Cadwallader.....	591 64
Sheldrake island	Provision of the material for a steel skeleton lighthouse tower..... (The tower will be erected during the season 1911-12).	Furnished under general contract.. ..	Goold, Shapley and Muir, Brantford, Ont.....	377 85

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Buctouche bar..	Protection work repairs.....	Day's labour. . .	H. Gallant. ....	402 41
Dalhousie wharf	Placing steel framework under the tower, to increase the height.....	" .....	P. B. Troy .....	418 28
Enrage, cape . .	Fog alarm repairs.....	" .....	T. Phillips.....	1,083 67
Escuminac.....	(1) New wooden lightkeeper's dwelling and boathouse .....	Contract . . . .	Edward Rourke, St. John West, N.B. ....	1,975 00
	(2) Sinking a well .....	" .....	T. Vontour, Escuminac..	60 00
Gull cove.....	Erection of a wooden lighthouse tower, 49 feet high, which replaces the pole light hitherto exhibited here.....	" .....	Edward Rourke, St. John	1,220 00
Grindstone isd..	Fresh water supply for fog alarm boilers.....	Day's labour... .	R. Summers.....	203 32
Harper point. . .	Erection of a small enclosed wooden lighthouse tower, on a cribwork block.....	" .....	P. Roy.....	802 82
Jourimain, cape.	Moving lighthouse tower to a new site.....	" .....	B. W. Allen. . . . .	300 53
McFarlane pt...	Construction of a wooden plank walk approach to lighthouse..	" .....	A. McFarlane.....	100 91
Partridge island.	Repairs to coal shed.....	" .....	H. Andrews.....	873 72



NEW BRUNSWICK—Continued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
St. Martins. . . .	Erection of a 22-foot wooden lighthouse tower, on the eastern breakwater. . . . .	Contract. . . . .	L. Mury, West Arichat, N.B. . . . .	650 00
Richibucto. . . . .	Moving the bar pole range lights to new sites; also small repairs. . . . .	Day's labour. . .	Jas. Legoof . . . . .	66 50
Sapin, point. . . .	Erection of a 27-foot wooden lighthouse tower. . . . .	Contract. . . . .	Jas. Legoof, Richibucto, N.B. . . . .	448 00
Shippigan . . . . .	Moving back range lightmast to a new site. . . . .	Day's labour. . . .	W. C. Trudel. . . . .	128 53
St. John. . . . .	Repairs to the beacon . . . . .	" . . . .	Jas. E. Kane. . . . .	1,488 18
Tiner point. . . . .	Reservoir repairs. . . . .	" . . . .	A. Splane. . . . .	234 38

PRINCE EDWARD ISLAND.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Charlottetown . .	Repairs to the marine wharf. . . .	Day's labour. . . .	G. L. Gaudin. . . . .	2,487 45
East point. . . . .	Lighthouse tower repairs; also repairs to the lightkeeper's dwelling house. . . . .	" . . . .	M. J. Walsh. . . . .	270 79
Grand Tracadie.	Moving pole lights to new positions . . . . .	" . . . .	M. J. Walsh. . . . .	50 00
New London. . . .	Building a new block foundation for the front beacon light. . . .	Contract. . . . .	H. McLeod, French river, P.E.I. . . . .	151 50

QUEBEC.

NEW AIDS TO NAVIGATION.

Bagot bluff. . . . .	(1) Provision of the machinery for a 3-inch duplicate diaphone plant, driven by two 12-H. P. engines. . . . .	Furnished under general contract. . . . .	Can. Fog Signal Co., Toronto, Ont. . . . .	6,500 00
	(2) Erection of a wooden fog alarm building. . . . .	Day's labour. . .	T. Thibaudeau. . . . .	13,723 00
	(3) Erection of a wooden double dwelling for the fog alarm engineer. . . . .			
	(This work will be completed during the season 1911-12). . . .			
Basse point. . . . .	(1) Provision of the material for the construction of a steel column base, to support a light-house tower. . . . .	Furnished under general contract. . . . .	Goold, Shapley & Muir, Brantford, Ont. . . . .	298 00
	(2) Construction of the above base; will be erected during season 1911-12. . . . .	Day's labour. . . .	Quebec workshops . . . . .	283 63



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## QUEBEC—Continued.

## AIDS TO NAVIGATION—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Est, cap à l'....	Erection of 33-foot reinforced concrete lighthouse tower....	Day's labour....	H. de Haan.....	1,537 89
Grand Pabos....	Erection of a mast light and shed on the wharf.....	Contract.....	F. Molloy, Grand Pabos, P. Q. ....	112 00
Gaspé Basin....	Erection of two wooden light-house towers on cribwork piers.....	" .....	Arthur Morin, Gaspé, P. Q. ....	3,255 00
Grand Entry. . .	(1) Construction of a cribwork pier for a pole light. ....	" .....	George J. Murray, Pic-tou, N.S. ....	704 00
	(2) Erection of a 30-foot pole light on the above cribwork pier.....	Day's labour....	T. Thibaudeau ...	68 36
Mai, Ile de. ....	Erection of a 22-foot wooden lighthouse tower.....	" .....	" .....	598 68
Moisie river . . .	Establishment of two sets of range beacons at the mouth of the Moisie river. ....	Contract.....	J. Perreault, Moisie, P.Q.	177 65
St. Omer.....	(1) Provision of the material for the construction of a steel column base, to support a light-house tower.....	Furnished under general contract. ....	Goold, Shapley & Muir, Brantford, Ont. ....	298 00
	(2) Construction of the above base.....	Day's labour....	Quebec workshops.....	263 86

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Amherst island.	(1) Provision of the material for the construction of a steel column base, to support a wooden lighthouse tower. ... (Will be erected during the season 1911-12)	Furnished under general contract.....	Goold, Shapley & Muir, Brantford, Ont.....	298 00
Amour, point...	Tower repairs.....	Day's labour....	T. M. Wyatt .....	755 45
Anguille, cape..	Construction of an engine room annex to the fog alarm building.....	" .....	J. Blanchette.....	290 09
Bauld, cape.....	Repairs to the dam ; also repairs to the boathouse.....	" .....	J. Blanchette.....	1,843 00
Belle Isle (N.E. end).....	(1) Construction of a concrete wharf, for landing supplies, &c..... (2) Installing a derrick and flag mast on the wharf.....	" .....	J. A. Smith .....	3,583 33
Belle Isle (S. W. end).....	(1) Construction of a concrete wharf, for landing supplies, &c .....	" .....	D. Bilodeau and A. Ouimet.....	6,429 86
	(2) Construction of a new dam, for supplying water for fog alarm machinery.....			
	(3) Installing new fog alarm machinery.....			
	(4) Building a new wooden shed.....			



QUEBEC—Continued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Carleton wharf..	Provision of a Scotch derrick...	Day's labour....	General Supply Co. of Canada, Ottawa, Ont..	220 00
Entry isd.....	Removal of the iron lantern from the old lighthouse tower to a new site; and the placing of it on a concrete base.....	" .....	F. Parent.....	245 81
Egg island.. ...	Repairing framework of tower, and reshingling... ..	" .....	J. Blanchette.....	1,925 76
Godbout.....	Repairs to pole lights.....	" .....	N. A. Comeau....	37 62
Heath point....	Construction of a new oil shed; also repairs to lighthouse tower, &c.....	" .....	H. de Haan... ..	1,309 62
Hospital rock...	Building a new oil shed .....	" .....	T. Thibaudeau....	133 87
Kamouraska. ...	Levelling up lighthouse site....	" .....	A. Levesque.....	130 00
Monts, pt. des.	Construction of a new wooden dwelling house for the light-keeper.....	Contract. . . .	L. Bouchard, Portneuf, P. Q.....	3,250 00
Martin River...	Building a fence around the lighthouse property .. ..	" .....	A. Leclerc, Martin Riv..	61 85
Norman, cape...	(1) Alterations to the fog alarm machinery..... (2) Tower repairs .....	Day's labour....	J. Blanchette.....	4,880 85
	(3) Constructing a wooden sidewalk between the tower and the fog alarm building.)			
Natashkwan....	Erection of an oil and shelter shed.....	" .....	H. Carbonneau ... ..	143 73
Prince shoal lightship.....	Installation of the fog alarm machinery, purchased in 1909-10, for this lightship.....	" .....	J. L. Richard.....	631 29
Portneuf-en-bas.	(1) Construction of a wooden dwelling house for the light-keeper .....	Contract .....	L. Bouchard, Portneuf-en-bas, P.Q. ....	1,650 00
	(2) Erection of a 3-section steel skeleton tower. (In course of construction).....	Day's labour....	E. Tremblay .. ..	178 68
St. Pancras...	Erection of a boathouse; also small repairs.....	" .....	T. Thibaudeau.....	390 50
Salmon, cape ...	Repairs to the lighthouse tower and fog alarm building.....	" .....	V. Talbot .....	1,684 23
Ste. Famille ...	Repairs to the back lighthouse tower .....	" .....	O. Tremblay.....	121 91
Ste. Pierre, I. O.	Completion of the erection of a 3-section steel skeleton light-house tower, began in 1910-11.	" .....	O. Tremblay.....	301 87
Traverse, upper.	Extensive repairs to the concrete pier.....	" .....	A. Perron .. ..	6,276 61



SESSIONAL PAPER No. 21

## MONTREAL.

## NEW AIDS TO NAVIGATION.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Richelieu river..	The establishment of several ranges of lighted beacons and pole lights in the river, between Sorel and St. Mark.....	Day's labour....	P. Beauchemin .....	1,250 06
St. Lambert reef	Erection of a wooden day beacon	" .....	H. Bourgouin.....	13 39
Tetreauville ...	Provision of the material for the erection of a 4-section steel skeleton tower, for the back light of this new range, which will be erected during the season 1911-12.....	Furnished under general contract .....	Goold, Shapley & Muir, Brantford, Ont. ....	668 59

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Chute à Blondeau	Erection of a storehouse on the wharf .....	Day's labour....	Capt. J. D. Weir .....	158 58
Grondines.....	(1) Erection of a new square wooden lighthouse tower, 27 feet high, for the front range light .....			
	(2) Erection of a new 48 foot steel skeleton lighthouse tower, to carry the back range light, surmounted by an enclosed wooden watchroom. (The steel work of the old tower was utilized in the erection of the new one) .....	" .....	E. Tremblay.....	4,138 70
Hochelaga .....	The erection of two pole lights to serve as a range, and to replace the beacon lights hitherto in service here which were pulled down and demolished. ....	" .....	P. Beauchemin .....	683 31
Lac, Pte du..	(1) The erection of a dwelling for the lightkeeper on the front lighthouse pier.....			
	(2) The destruction of the wooden cribwork, and concrete work of the old pier, which formed an obstruction.....	" .....	L. P. Filion.....	4,692 68
Marie, Ile.....	Repairs to the front pier. ....	" .....	Ed. Tremblay .....	2,187 78
McTavish point.	Erection of a 23-foot square wooden lighthouse tower to take the place of the pole light hitherto exhibited.....	" .....	M. J. Egan .....	749 89
Port St. Francis.	Small repairs to front pier.....	" .....	Ed. Tremblay .....	34 30
Ronde, Ile . . .	Erection of a shelter shed for the lightkeeper. ....	" .....	Ed. Tremblay ..	455 05
St. Peter, Lake.	Construction of ice-breakers on the upper and lower piers; also repairs to the upper back lighthouse pier ..	" .....	Ed. Tremblay .....	4,593 81
Vercheres .....	Rip-rap protection work. ....	" .....	E. Tremblay.....	133 11
Witch Shoal....	Lighthouse tower repairs. ....	" .....	M. J. Egan .....	531 62



## ONTARIO.

## NEW AIDS TO NAVIGATION.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Anherstburg....	Purchase of site for departmental depot .....	.....	Pittsburg Coal Co., Cleveland, Ohio.....	3,000 00
Cobourg.....	(1) Erection of a reinforced concrete gas beacon on the west pier .....	Contract.....	Randolph, McDonald & Co., Toronto, Ont....	3,000 00
	(2) Erection of a temporary wooden fog alarm building on the east pier. ....	Day's labour... ..	T. H. Brewer.....	436 84
	(3) Installing fog alarm machinery.....	" .....	W. H. Roebuck .....	
	(4) Provision of the machinery for a 1½-inch diaphone plant with 4-H.P. engine....	Furnished under general contract. ....	Can. Fog Signal Co., Toronto, Ont.....	1,431 00
Michipicoten Is.	Construction of a 65-foot reinforced concrete tower, dwelling and outbuildings. (In course of construction. Will be completed during season 1911-12).....	Day's labour....	T. H. Brewer.....	3,928 00
Muskoka River.	Erection of five tripod lights....	" .....	Capt. F. Beaumont.....	427 96
Onderdonk. ....	Erection of a 20-foot square wooden lighthouse tower....	" ...	T. H. Brewer .....	477 19
Rideau river....	Building and placing 47 buoys between at various points on the river.....	Contract.. ..	D. Noonan, Kingston, Ont....	2,400 00
Sault Ste. Marie.	(1) Completion of the erection of range lighthouse towers began in 1909-10 .....	Day's labour....	T. H. Brewer.....	323 13
	(2) Provision of the material for the erection of the front range steel skeleton lighthouse tower general contract.. ..	Furnished under	Goold, Shapley & Muir, Brantford, Ont.....	377 85
Shaganash .....	Erection of a square wooden dwelling, surmounted by a square wooden lantern... ..	Day's labour....	M. J. Egan.....	2,484 90
Victoria harbour	Erection of two square wooden lighthouse towers, surmounted by square wooden lanterns....	" ...	G. Dobson, Victoria Harbour, Ont.	1,766 81
Waubauskene...	(1) Erection of two sets of pole range lights, operated by electricity.....	Contract.....	The Sheppard Lumber Co'y., Waubauskene, Ont.....	787 82
	(2) Construction of 3 cribs to carry lights.....	" .....	" .....	182 95

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Burlington beach	Small repairs.....	Day's labour....	T. Lundy.....	15 00
Caribou island..	Erection of an 80-foot reinforced concrete lighthouse tower....	" .....	T. H. Brewer.....	7,183 80
Colchester reef..	Extensive repairs to the concrete protection work around lighthouse tower, &c.....	" .....	M. J. Egan.....	6,724 26



## SESSIONAL PAPER No. 21

## ONTARIO—Continued.

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Croker, Cape....	Overhauling machinery of the fog alarm.....	Day's labour....	W. H. Roebuck.....	721 84
Grosse point....	Repairing the breakwater pier; also repairs to the lighthouse towers.....	".....	M. J. Egan.....	1,476 06
McKay island..	Building new boathouse, and repairing lighthouse tower. ....	Contract.....	Arch. Brechin, Bruce Mines, Ont.....	121 95
Mississagi strait	(1) Building new boathouse.	Day's labour....	J. H. Ball.....	169 93
	(2) Purchase of new boiler tubes for the fog alarm boilers.	Contract.....	John Inglis & Co., Toronto, Ont.....	234 92
	(3) Installing the above boiler tubes.....	Day's labour....	W. H. Roebuck.....	212 85
Niagara-on-Lake	Erecting oil shed.....	".....	T. H. Brewer.....	273 62
Presqu'île .....	(1) Provision of an electric light plant for the fog alarm station.	Contract.....	Can. Fog Signal Co., Toronto, Ont.....	295 50
	(2) Installing the above light...	Day's labour....	W. B. Ainsworth.....	13 68
Pelee passage...	(1) Tower repairs.....	".....	M. J. Egan.....	226 00
	(2) Provision of the machinery for a 1½-inch. diaphone plant, driven by two 6-h.p. engines.	Furnished under general contract	Can. Fog Signal Co., Toronto, Ont.....	2,798 00
	(3) Installing the above machinery.....	Day's labour....	W. H. Roebuck ..	725 69
Point Porphyry.	Machinery repairs.....	".....	".....	101 89
Port Colborne ..	".....	".....	".....	331 73
Sulphur island..	Cribwork protection work.....	".....	J. J. King....	50 00
St. Anicet .....	Repairs to the lighthouse tower; also protection work.....	".....	Geo. Brown, officer in charge Dominion Light house Depot.....	1,075 22
Thessalon. ....	Building small boathouse .....	".....	Jas. Harvey.....	75 00
Warren's Land- ing .....	Moving back light to a new site.	Contract..	Wm. Dewar, Warren's Landing, Man.....	275 00

## BRITISH COLUMBIA.

## NEW AIDS TO NAVIGATION.

Bamfield islands	Erection of a concrete beacon, 22 feet high. ....	Contract.....	Anderson & MacKinnon, Prince Rupert, B.C. ...	1,460 00
Denny island ...	Erection of a wooden day beacon.	Day's labour...	Crew of C.G.S. 'Quadra'	
Estevan point...	Completion of the erection of a 100-foot reinforced steel concrete lighthouse tower, stiffened with 8 flying buttresses. (This work was started during the season 1909-10).....	".....	Luke Humber.....	1,481 04
Fairview point..	Construction of a concrete beacon, 22 feet high.....	Contract.....	Anderson & MacKinnon, Prince Rupert, B.C....	1,175 00
Herbert reefs. ..	Construction of a concrete beacon, 22 feet high.....	".....	J. H. Pillsbury, Prince Rupert, B.C.....	1,400 00



BRITISH COLUMBIA—Continued.

AIDS TO NAVIGATION—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.	
				\$	cts.
Procter . . . . .	(1) Establishment of two mast lights and shed . . . . .	Contract . . . . .	A. G. Gallup, Nanaimo, B. C . . . . .	140	00
	(2) Erection of a small dwelling house for the lightkeeper . . . . .	" . . . . .	P. Jenson, Procter, B.C	325	00
Patey rock . . . . .	Erection of a concrete beacon, 13 feet high, carrying a 31-day Wigham lamp. . . . .	Day's labour . . . . .	J. Davies . . . . .	721	78
Ripple point . . . . .	Erection of a cone-shaped wooden day beacon . . . . .	" . . . . .	Crew of C.G.S. 'Quadra'		
Rock bay bluff . . . . .	Erection of a cone-shaped wooden day beacon . . . . .	" . . . . .	" . . . . .		
Somass river . . . . .	Erection of a wooden 9-pile beacon, to carry a 31-day Wigham lamp . . . . .	Contract . . . . .	Geo. Forrest, Alberni, B. C . . . . .	450	00
Second Narrows . . . . .	Erection of two wooden 5-pile beacons, surmounted by lattice-work drums . . . . .	Day's labour . . . . .	Capt. H. Cates . . . . .	319	62
Thurlow island . . . . .	Erection of a cone-shaped wooden day beacon . . . . .	" . . . . .	Crew of C.G.S. 'Quadra'		
Triangle island . . . . .	Erection of a 46-foot reinforced concrete lighthouse tower, surmounted by a circular metal lantern; also a wooden dwelling house, out-buildings, &c. . . . .	" . . . . .	J. D. MacDonald . . . . .	12,372	01
Vancouver hbr. . . . .	Completion of the installation of a semaphore system . . . . .	" . . . . .	Capt. McInnis . . . . .	255	79
Yuquot . . . . .	Erection of a combined wooden lighthouse and lightkeeper's dwelling . . . . .	Day's labour . . . . .	B. Aussette . . . . .	7,651	37

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Active pass . . . . .	Boathouse repairs . . . . .	Day's labour . . . . .	L. Cullison . . . . .	303	47
Ballenas islands . . . . .	Building boatslip and windlass . . . . .	" . . . . .	L. Cullison . . . . .	191	76
Brockton point . . . . .	Boat landing repairs . . . . .	" . . . . .	J. T. Bruce . . . . .	86	60
Discovery island . . . . .	Boat landing repairs . . . . .	" . . . . .	J. T. Bruce . . . . .	129	54
First Narrows . . . . .	Moving gas lighted beacon to a new site; and establishing a fog bell, operated by machinery, at the base of the beacon . . . . .	" . . . . .	J. T. Bruce . . . . .	1,281	35
Lennard island . . . . .	Dwelling house repairs . . . . .	" . . . . .	J. F. Davidson . . . . .	552	54
Prospect point . . . . .	Repairs to the lightstation . . . . .	" . . . . .	J. T. Bruce . . . . .	182	25
Pine island . . . . .	Trail work . . . . .	" . . . . .	A. B. Gurney . . . . .	60	00
Regatta rock . . . . .	Rebuilding the wooden day beacon, surmounted by a slat-work ball, destroyed by winter gales . . . . .	" . . . . .	Crew C. G. S. 'Quadra'	75	67
Saturna island . . . . .	Dwelling house repairs . . . . .	" . . . . .	L. Cullison . . . . .	198	24
Trial island . . . . .	Lighthouse repairs . . . . .	" . . . . .	L. Cullison . . . . .	210	15
West Coast Trails . . . . .	See special report . . . . .	" . . . . .	A. Barnes and J. Chesterman . . . . .	28,374	41



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## APPENDIX No. 2.

## ANNUAL REPORT OF THE COMMISSIONER OF LIGHTS.

To the Deputy Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit the eighth annual report of this branch. The principal work performed has been the substitution of modern dioptric apparatus in a number of major coast lights, the improvement of minor coast lights by the installation of petroleum vapour as an illuminant, an extension of the gas buoy and beacon service throughout the various provinces and the maintenance of lights and other aids to navigation throughout the Dominion, together with the installation of what new apparatus was required at new stations.

The gas buoys and beacons still continue to give satisfaction, and, during the winter just past, there has been singularly small interruption in this service, this being due to the fact that the department is continually adding to its information on this subject thereby making possible a better selection of moorings and more expert handling. In the matter of gas buoys, two losses occurred, viz., gas buoy, type No. 11, serial No. 575, was carried ashore near Centerville, N.S., and proved a total loss, also gas buoy, type No. 9½, serial No. 711, was lost from Kyuquot, B.C., and has not been recovered. On the other hand, however, one No. 11 gas buoy reported last year as having broken adrift from Southwest Head, Cape Sable, has been recovered and repaired. Also a small type gas buoy which was lost in the Georgian bay in 1906 was located by the C.G.S. *Simcoe* and recovered.

Submarine bells have given excellent service, having been in constant operation during the thick weather since their establishment four years ago. Four electric shore stations, Negro Head, Yarmouth, Chebucto Head, and Louisburg were thoroughly overhauled last summer as were likewise the lightship bells at Lurcher, Anticosti, White island, Red island, and Prince shoal. The submarine buoy bell which was placed experimentally off Sambro has given promise of good service and arrangements have been made to acquire two additional buoys on this principle which will be stationed one off Fame Point and one on the Atlantic coast. It would seem, from results so far obtained, that this type of buoy will be found to give such excellent results as to warrant an extension of the service in that direction.

A lightship has been established by the government of Canada at Southeast shoal, Lake Erie, replacing the American lightship which had previously marked that point. This lightship is equipped with lights, aerial fog signal, and submarine bell. Also a considerable extension of the Canadian lighthouse service has been put into effect on the lower Detroit river, the Canadian aids to navigation replacing those maintained by the American government in Canadian waters, the extension involving some 16 gas buoys, 25 minor floating lights and 20 unlighted spars together with five pairs of range lights at Elliot Point, Amherstburg, Fort Malden, Texas Dock easterly, and Texas Dock westerly, which range lights had previously been maintained by American authorities.

With regard to the lighthouse service generally, perhaps the most notable departure or advance has been a substantial increase in lightkeepers' salaries amounting to about 30 per cent for the entire service. Great difficulty had previously been experienced in securing lightkeepers at the previous salaries but this difficulty has been removed and many expressions of satisfaction have been received.



2 GEORGE V., A. 1912

In the Nova Scotia agency, the *Lady Laurier* and *Aberdeen* have been in use in connection with lighthouse and buoy service. The buoys on the Bay of Fundy, coast of Nova Scotia, from Cape Sable inward are under the control of the New Brunswick agency being nearer geographically to St. John than to Halifax.

In the New Brunswick agency, the improvement mentioned last year by reason of the C. G. S. *Stanley* having been detailed for buoy service at that point has been even more marked, the New Brunswick agency being enabled to give more careful attention to buoy moorings in the matter of overhauling and repair.

In the Prince Edward Island agency, the C. G. S. *Brant* is useful in delivering lighthouse supplies but is not large enough to handle the larger buoys. These buoys are handled spring and fall by one of the steamers of the Nova Scotia agency.

In the Quebec agency, the C. G. S. *Druid* is employed principally on buoy work and delivery of lighthouse supplies between Platon and Fame Point. The C. G. S. *Montcalm* is employed in delivering lighthouse supplies at more distant gulf points.

In the Montreal agency, the C. G. S. *Shamrock* is employed both for buoy service and lighthouse inspection work but is found inadequate for the service. The new steamer for this agency, already arranged for, will be a distinct improvement.

The Dominion Lighthouse Depot, Prescott, proves a depot of great usefulness and is in fact indispensable. From the depot is administered the buoy service between Montreal and the Bay of Quinté. The depot is also a distributing point for apparatus throughout the Dominion, likewise a centre for the manufacture of lighthouse apparatus of a special nature and for the repair of same. Photometric and other tests are performed from time to time in order to determine the usefulness of new apparatus or to establish a comparison between various types and much information of a useful character has been compiled, which information is not available elsewhere.

The work in the Parry Sound agency consists particularly in the maintenance of floating aids to navigation in the Georgian bay, the work being handled by the C. G. S. *Simcoe*. This steamer is also employed on inspection work and delivery of lighthouse supplies from Kingston to Fort William and for the removal of lightkeepers from rock stations on Lake Superior late in the fall and placing them on their stations again in the spring.

In the British Columbia agency, much development has taken place particularly in the buoy and beacon service. The service is handled by the C. G. S. *Quadra* and C. G. S. *Newington*, but these vessels have been found to be quite inadequate for the work and it has been necessary from time to time to charter other vessels. Relief is hoped for from the provision of a new steamer which is now being constructed and from the buoy depot which is being established at Prince Rupert. With the hitherto existing conditions it has been almost impossible to maintain a satisfactory lighthouse and buoy service in the northern parts of the province.

Please find herewith enclosures, as follow:—

*Enclosure No. 1.*—Statement, by provinces, showing new aids to navigation established throughout the Dominion also improvements effected in the existing aids during the fiscal year 1910-11.

*Enclosure No. 2.*—Statement, by provinces, showing the number of lights of the several orders, lightships, light boats, lightkeepers, fog alarm stations, warning buoys and submarine bells.

*Enclosure No. 3.*—Statement giving complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year, 1910-11.

In conclusion, I desire to express and record my appreciation of the able assistance rendered by my staff, and the untiring application to duty exhibited by each member. It would not have been possible to carry out the large and increasing



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amount of work which is devolving upon this branch without the co-operation of all the officers connected with it.

I have the honour to be, sir,

Your obedient servant,

J. G. MACPHAIL, B.A., B. Sc., A. M. CAN. Soc. C.E.  
*Commissioner.*

Office of the Commissioner of Lights,  
Department of Marine and Fisheries,  
April 1, 1911.

(INCLOSURE No. 1.)

STATEMENT, BY PROVINCES, SHOWING NEW AIDS TO NAVIGATION,  
ESTABLISHED THROUGHOUT THE DOMINION, ALSO IMPROVE-  
MENTS EFFECTED IN EXISTING AIDS DURING THE FISCAL YEAR  
1910-11.

NEW BRUNSWICK.

*New Lights.*

*Glenwood, River St. John.*—A pole light has been established on the wharf known locally as Belyea's. The light is fixed white, shown from a 7th order lens lantern.

Latitude, N.  $45^{\circ} 29' 40''$ .

Longitude, W.  $66^{\circ} 7' 45''$ .

*Improvements.*

*Greys point, Belle Isle bay.*—A 7th order lens lantern replaces the pressed lens lantern formerly in use.

*Hay island, Miramichi bay.*—The back light has been improved by the substitution of a 6th order dioptric illuminating apparatus for the pressed lens heretofore used.

*Gull cove, Whitehead island, Bay of Fundy.*—The pole light heretofore used at this point has been replaced by a tower. The illuminating apparatus is dioptric of the 4th order. The light is fixed white.

Latitude, N.  $44^{\circ} 37' 50''$ .

Longitude, W.  $66^{\circ} 41' 52''$ .

*Hay island.*—A 6th order  $180^{\circ}$  lens has been installed at this point.

*Pokesudie, Chaleur bay.*—A 5th order dioptric illuminating apparatus replaces the 7th order lens lantern heretofore used.

*St. Martins, Bay of Fundy.*—The temporary mast light heretofore maintained at this point has been discontinued and a tower built on the extremity of the extension of the east breakwater. The apparatus is dioptric of the 6th order, showing a fixed red light which should be visible 7 miles from all points of approach by water.

*Sapin point, Kouchibouguac bay.*—Owing to the establishment of a lighthouse, the lantern hoisted on a pole has been discontinued. The new light is fixed white, and the illuminating apparatus dioptric of the 6th order.

*South Tracadie.*—The light at this point has been strengthened by the substitution of a 5th order dioptric apparatus for the catoptric apparatus previously in use.



Other Aids.

*Pompey ledge, Deer island.*—Beacon erected to mark the entrance to Northwest harbour from the southward inside of Dinner island. The base is concrete, 11 feet high, octagonal in plan, the sides of the lower portion being vertical, and those of the upper portion battered. This base is surmounted by a red pyramid of open steel framework 13 feet high.

Latitude, N. 44° 58' 47".  
Longitude, W. 66° 56' 40".

*St. Andrews harbour, Bay of Fundy.*—The following buoys have been established to mark the dredged channel across the bar at the western entrance to St. Andrews harbour:—

1. A conical steel buoy painted red, moored in 3 fathoms of water on the south side of the western entrance of the dredged channel.

Latitude, N. 45° 4' 15".  
Longitude, W. 67° 4' 36".

2. A red spar buoy, moored in 9 feet of water on the south side of dredged channel.

Latitude, N. 45° 4' 15".  
Longitude, W. 67° 3' 55".

NOVA SCOTIA.

Improvements.

*Big Fish Island, Tusket river.*—The two fixed white catoptric lights heretofore shown at this point have been replaced by an occulting white light with the following characteristic:—

Visible..	11 seconds.
Eclipsed..	3 "
Visible..	3 "
Eclipsed..	3 "
<hr/>	
In every..	20 "

The illuminating apparatus is dioptric of the 4th order.

*Cape North, Cape Breton Island.*—A 3rd order single flashing light, showing one bright flash every 5 seconds, has been placed at this point. The illuminant is petroleum vapour burned under an incandescent mantle.

*Cape Sharp.*—The fixed red light at this point has been changed to an occulting white light visible 7 seconds and eclipsed 3 seconds alternately. The illuminating apparatus is dioptric of the 4th order and the illuminant petroleum vapour burned under an incandescent mantle.

*Port Lorne, Bay of Fundy.*—The upper light has been improved by the substitution of a 5th order dioptric illuminating apparatus for the catoptric apparatus heretofore used.

Other aids.

*Bull Rock, off Charles Point.*—A bell buoy has been established in 12 fathoms of water 3½ cables S. 8° E. from Bull Rock, off Pleasant harbour.

Latitude, N. 44° 44' 00"  
Longitude, W. 62° 41' 10"



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This buoy is painted in red and black horizontal bands with 'Bull Rock' in white letters on the deck.

*Bull Rock, off Cape Mocodome, Fisherman's harbour approach.*—A bell buoy has been established  $2\frac{1}{2}$  cables S. 22 E. from Bull Rock, off Cape Mocodome, south coast of Nova Scotia.

Latitude, N.  $45^{\circ} 5' 15''$   
Longitude, W.  $61^{\circ} 38' 23''$

The buoy is moored in 7 fathoms of water. It is painted black with 'Bull Rock' in white letters on deck.

*Caveau shoal, entrance to Cheticamp harbour.*—Bell buoy painted black with 'Caveau shoal' in white letters on deck.

Latitude, N.  $46^{\circ} 39' 30''$   
Longitude, W.  $61^{\circ} 00' 38''$

*Island Harbour, South coast.*—A spar buoy, painted black, has been established to mark the extremity of the shoal extending north from the northwest end of Harbour island. The buoy is moored in 6 fathoms of water.

Latitude, N.  $45^{\circ} 8' 40''$   
Longitude, W.  $61^{\circ} 36' 45''$

*Liscomb shoal, south coast.*—A bell buoy has been moored off the eastern extremity of this shoal. The buoy is painted black with 'Liscomb shoal' in white letters on the deck.

Latitude, N.  $44^{\circ} 58' 42''$   
Longitude, W.  $61^{\circ} 57' 44''$

*Neil harbour, east coast, Cape Breton Island.*—Hand fog horn at lighthouse.

*Port Mouton, south coast.*—Owing to a new channel having been dredged at this point, 7 spar buoys (3 red spars on its north side and 4 black spars on its south side) have been placed. The three-spar buoys that marked the old curved channel in this vicinity have been moved to mark the new channel. The most easterly red spar is moored at the eastern end of the channel  $\frac{1}{8}$  mile S.  $40^{\circ}$  W. from Bell Point.

Latitude, N.  $43^{\circ} 55' 22''$   
Longitude, W.  $64^{\circ} 50' 9''$

The most easterly black spar buoy is moored opposite the most easterly red spar. The second red spar is moored 800 feet from the most easterly red spar, and the second black spar is moored opposite the second red spar. The third red spar is moored 1,550 feet from the most easterly red spar, and the third black spar is moored opposite the third red spar. The fourth (most westerly) black spar is moored on the south side of the basin, 200 feet from the outer end of Neville wharf.

*St. Ann Point, Pubnico harbour entrance.*—Bell buoy.

Latitude, N.  $43^{\circ} 34' 55''$   
Longitude, W.  $65^{\circ} 48' 12''$

*St. Mary's Bay, off southern entrance to Grand Passage.*—An automatic whistling buoy, painted black and white vertical stripes, with the words 'Grand Passage' painted on the body of the buoy, has been established off the southern entrance to this passage.

Latitude, N.  $44^{\circ} 14' 28''$   
Longitude, W.  $66^{\circ} 20' 23''$



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*Torbay.*—An automatic whistling buoy, painted red and black vertical stripes, has been established off the entrance to Torbay.

Latitude, N.  $45^{\circ} 10' 53''$

Longitude, W.  $61^{\circ} 17' 45''$

*Southwest shoal, Tusket river.*—A steel can buoy, moored in 7 fathoms of water and painted red and black horizontal bands, with 'Southwest shoal' in white letters on top, has been established one cable S.  $17^{\circ}$  W. from the southern end of this shoal off the entrance to Tusket river.

Latitude, N.  $43^{\circ} 38' 55''$

Longitude, W.  $65^{\circ} 56' 25''$

(2) A steel can buoy, painted red, has been established in  $4\frac{1}{2}$  fathoms of water at the northern end of 'Tucker island' shoal, Tusket river.

Latitude, N.  $43^{\circ} 43' 15''$

Longitude, W.  $65^{\circ} 57' 7''$

#### *Discontinuance.*

*Liscomb shoal, south coast.*—Black iron can buoy.

*Port Lorne, Bay of Fundy.*—Lower light.

#### *Gas Buoys.*

*Leopard shoal, Halifax harbour.*—The black can buoy heretofore marking this shoal has been replaced by an automatic gas buoy showing an occulting white light. The buoy is painted black, with the name of the shoal in white letters on the deck.

Latitude, N.  $44^{\circ} 38' 20''$

Longitude, W.  $63^{\circ} 34' 2''$ .

#### *Submarine Bells.*

The character of the submarine bell eastward from Harbour shoal, off the entrance to Louisburg harbour, has been changed from 2 strokes to 4 strokes in quick succession about 5 times every minute.

### PRINCE EDWARD ISLAND.

#### *New Lights.*

*Charlottetown.*—A fixed red light shown from a lantern on the southwest corner of the outer warehouse on the Marine Department's wharf.

*North Rustico.*—Owing to the shifting of the channel over the bar at this point, a new range has been established showing white fixed lights from lanterns hoisted on poles.

#### *Other Aids.*

*Cascumpeque harbour entrance.*—A bell buoy has been established off the outer bar at the entrance to this harbour.

Latitude, N.  $46^{\circ} 48' 32''$ .

Longitude, W.  $63^{\circ} 59' 14''$ .

The buoy is painted black.



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*East Point, Northeast coast.*—An automatic whistling buoy has been established to mark the reef off this point.

Latitude, N.  $46^{\circ} 27' 45''$ .

Longitude, W.  $61^{\circ} 56' 15''$ .

The buoy is painted red with the words 'East Point Reef' in white letters.

*Summerside harbour, Bedeque bay.*—The three spar buoys heretofore maintained to mark the north edge of Island shoal have been replaced by a red steel conical buoy moored in the same position.

## QUEBEC.

*New Lights.*

*Bonaventure river.*—A lens lantern, hoisted on a pole 20 feet high, has been established at the outer end of the wharf. The light is fixed red.

Latitude, N.  $48^{\circ} 2' 20''$ .

Longitude, W.  $65^{\circ} 28' 56''$ .

*Godbout, River St. Lawrence (Front).*—Fixed red light shown from anchor lens lantern hoisted on a pole. *(Back)*—Fixed red light shown from anchor lens lantern hoisted on a pole.

*Cape East, Saguenay river.*—Fixed white light. The illuminating apparatus is dioptric of the 6th order.

*St. Omer, Chaleur bay.*—A lighthouse has been established on the outer end of the wharf at this point.

Latitude, N.  $48^{\circ} 6' 24''$ .

Longitude, W.  $66^{\circ} 11' 45''$ .

The light is fixed red. The illuminating apparatus is dioptric of the 6th order.

*Grand Entry harbour, Magdalen islands.*—An additional light which will constitute the back light of a range, to guide vessels through the entrance channel, has been established on the shoal inside the entrance to the harbour 782 feet N.  $62^{\circ} 45'$  E. from the existing front light. The light is fixed red shown from an anchor lens lantern hoisted on a pole 30 feet high.

*Grand Pabos wharf.*—Fixed red light shown from an anchor lens lantern hoisted on a pole.

*May islet, Gulf of St. Lawrence.*—Fixed white light. The illuminating apparatus is dioptric of the 7th order.

*Moisie river, Gulf of St. Lawrence.*—*(Front).* Fixed red light shown from lens lantern hoisted on a pole. *(Back).* Fixed red light shown from lens lantern hoisted on pole.

There is a white diamond-shaped slatted day mark attached to each light pole.

*Improvements.*

*Bonaventure point, Chaleur bay.*—The fixed white light at this point has been changed to an occulting white light visible 15 seconds and eclipsed 5 seconds alternately. The illuminating apparatus is dioptric of the 5th order.

*Crane island, St. Lawrence river.*—The light at this point has been changed from an occulting white light to a fixed white light. The illuminating apparatus will



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remain, as heretofore, dioptric of the 4th order, but the light will be reinforced in the downstream range by reflectors. The illuminant is petroleum vapour burned under an incandescent mantle.

*Macquereau point.*—Vapour light replaces the duplex lamp formerly in service.

#### *Other Aids.*

*Beauport, River St. Lawrence.*—Three black spar buoys have been established to mark the small channel leading to the government wharf at this point. These buoys are moored in about 8 feet low water, and serve as a guide to schooners and lighters coming to or leaving the wharf. The following sextant angles fix the position of the first buoy:—

Beauport church,  $00^{\circ} 00' 00''$

Ste. Petronille church,  $56^{\circ} 25' 00''$

St. Joseph de Levis church,  $47^{\circ} 40' 00''$

The following sextant angles fix the position of the second buoy:—

Beauport church,  $00^{\circ} 00' 00''$

Ste. Petronille church,  $53^{\circ} 44' 00''$

St. Joseph de Levis church,  $46^{\circ} 42' 00''$

The following sextant angles fix the position of the third buoy:—

Beauport church,  $00^{\circ} 00' 00''$

Ste. Petronille church,  $52^{\circ} 45' 00''$

St. Joseph de Levis church,  $46^{\circ} 25' 00''$

*Harrington harbour, Gulf of St. Lawrence.*—1. A black iron can buoy moored in 5 fathoms of water.

Latitude, N.  $50^{\circ} 29' 43''$

Longitude, W.  $59^{\circ} 27' 21''$

2. A red iron conical buoy, moored in  $4\frac{1}{2}$  fathoms of water.

Latitude, N.  $50^{\circ} 29' 44''$

Longitude, W.  $59^{\circ} 26' 56''$

Pointe Noir, Saguenay river entrance.—Hand fog horn.

#### *Discontinuance.*

*Beaujeu Bank.*—Red conical buoy No. 72-B.

*Varde Point, Restigouche River.*—The light boat at this point has been discontinued.

*Lark Reef.* T5—B.—Red conical buoy.

#### *Gas Buoys.*

*Goose Island, River St. Lawrence, Station No. 66—B.*—A gas buoy, painted red, shewing an occulting white light, has been established in 5 fathoms of water, south of Goose Island Reef.

Latitude, N.  $47^{\circ} 9' 4''$

Longitude, W.  $70^{\circ} 24' 52''$

*Matane, River St. Lawrence.*—The bell buoy formerly moored on the outer edge of the shoal off the mouth of Matane river has been replaced by an automatic gas



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and bell buoy. The buoy is painted black. The light is white, automatically occulted at short intervals. The illuminant is acetylene.

*Lark Reef, River St. Lawrence, Station No. 96—B.*—A gas buoy, painted red, showing an occulting white light, has been established on the southeast extremity of Lark reef.

Latitude, N.  $48^{\circ} 3' 40''$   
Longitude, W.  $69^{\circ} 38' 25''$

*Ste. Croix Bar, River St. Lawrence, Station No. 36—Q.*—A gas buoy, painted red, showing an occulting white light, has been established at the western end of Ste. Croix bar dredged channel.

Latitude, N.  $46^{\circ} 38' 45''$   
Longitude, W.  $71^{\circ} 44' 46''$

*St. Thomas, Station No. 78½—B.*—Gas buoy.

## MONTREAL DIVISION.

*New Lights.*

*Grönville, Ottawa River.*—Lighted buoy. The buoy consists of a square platform, or float, painted black, surmounted by a post carrying a pressed lens lantern showing a fixed white light.

*Pointe du Lac, front light.*—A new lighthouse has been erected at this point. The illuminating apparatus is a 5th order dioptric lens showing a fixed white light. The illuminant is acetylene.

*Magog Wharf.*—A fixed red light shown from a pressed lens lantern on a shelf on the wall of the freight shed.

*Batture St. Antoine Traverse, Front Light.*—A fixed white light shown from a pressed lens has been established on the west side of the river below Petite Ile.

*Batture St. Antoine Traverse, Back Light.*—A fixed white light shown from a pressed lens has been established 109 feet N.  $20^{\circ} 5' E.$  from front light.

*Cardinal Traverse, Front Light.*—A fixed white light shown from a pressed lens has been established on the east side of the river opposite upper end of Deschaillons island.

*Cardinal Traverse, Back Light.*—A fixed white light shown from a pressed lens has been established 188 feet N.  $39^{\circ} 30' E.$  from front light.

*Hebert Point.*—A fixed white light shown from a pressed lens has been established on the east side of the river.

*St. Mark Point.*—A fixed white light shown from a pressed lens has been established on the west side of the river.

*Laperle Traverse, Front Light.*—A fixed white light shown from a pressed lens has been established on the east side of the river, about  $\frac{3}{4}$  miles above St. Ours locks.

*Laperle Traverse, Back Light.*—A fixed white light shown from a pressed lens has been established 228 feet S.  $4^{\circ} 25' E.$  from front light.

*Marcotte Traverse, Front Light.*—A fixed white light shown from a pressed lens has been established on the west side of the river about  $\frac{3}{4}$  mile above St. Antoine church.



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*Marcotte Traverse, Back Light.*—A fixed white light shown from a pressed lens has been established 177 feet S.  $62^{\circ} 15'$  W. from front light.

*Petite Ile Course, Front Light.*—A fixed white light shown from a pressed lens has been established on the east side of the river above Petite Ile.

*Petite Ile Course, Back Light.*—A fixed white light shown from a pressed lens has been established 397 feet S.  $38^{\circ} 30'$  W. from light.

*St. Antoine Church, Point Traverse, Front Light.*—A fixed red light shown from a pressed lens has been established near St. Antoine church, on the west side of the river.

*St. Antoine Church, Point Traverse, Back Light.*—A fixed red light shown from a pressed lens has been established 131 feet N.  $51^{\circ} 28'$  W. from front light.

*St. Charles Point.*—A fixed white light shown from a pressed lens has been established on the east side of the river.

*St. Onge Traverse, Front Light.*—A fixed white light shown from a pressed lens has been established about  $\frac{1}{2}$  mile below north end of Deschaillons island, on the west side of the river.

*St. Ours Locks Traverse, Back Light.*—A fixed white light shown from a pressed lens has been established 165 feet N.  $37^{\circ} 45'$  E. from front light.

*St. Ours Locks Traverse, Front Light.*—A fixed white light shown from a pressed lens has been established on the east side of the river, opposite upper pier of St. Ours locks.

*St. Ours Locks Travers, Back Light.*—A fixed white light shown from a pressed lens has been established 165 feet N.  $20^{\circ} 5'$  E. from front light.

*St. Ours Locks Traverse, Back Light.*—A fixed white light shown from a pressed lens has been established on the west side of the river below Petite Ile.

*Windmill Point Traverse, Front Light.*—A fixed white light shown from a pressed lens has been established 152 feet N.  $29^{\circ} 50'$  E. from front light.

#### *Improvements.*

*Pointe-à-Cadieux.*—240° 6th order lens replaces the catoptric apparatus heretofore in use.

#### *Other Aids.*

*Boucherville Channel, River St. Lawrence.*—The following buoys have been established in the upper, or southern, part of this channel:—

1. A red conical buoy one-half mile below Ile Charron.

Latitude, N.  $45^{\circ} 35' 47''$

Longitude, W.  $73^{\circ} 27' 56''$

2. A black iron can buoy one-eighth mile above northeast extremity of Ile Charron.

Latitude,  $45^{\circ} 35' 15''$

Longitude, W.  $73^{\circ} 28' 26''$

3. A black iron can buoy one-third mile below Iles Vertes on west edge of 8-foot patch.

Latitude, N.  $45^{\circ} 34' 44''$

Longitude, W.  $73^{\circ} 28' 54''$



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4. A barrel buoy, painted black and white, one-fourth mile below Iles Vertes.

Latitude, N.  $45^{\circ} 34' 42''$

Longitude, W.  $73^{\circ} 29' 3''$

5. A barrel buoy, painted black and white, one-eighth mile below Iles Vertes.

Latitude, N.  $45^{\circ} 34' 38''$

Longitude, W.  $73^{\circ} 29' 14''$

6. A barrel buoy, painted black and white, one-eighth mile above Ile Charron.

Latitude, N.  $45^{\circ} 34' 34''$

Longitude, W.  $73^{\circ} 29' 25''$

*Cap Levrard Channel, River St. Lawrence.*—The following changes have been made in the buoyage of this channel:—

A black can buoy, 103—Q, has been removed 103 feet S.  $20^{\circ}$  E. from old position.

An iron conical buoy, painted red, numbered 104—Q, has been established opposite the black can buoy No. 103—Q.

Latitude, N.  $46^{\circ} 33' 7''$

Longitude, W.  $72^{\circ} 9' 10''$

An iron conical buoy, painted red, numbered 106—Q, has been established opposite the black gas buoy No. 105—Q.

Latitude, N.  $46^{\circ} 32' 33''$

Longitude, W.  $72^{\circ} 10' 00''$

A red spar buoy, numbered 108—Q, has been established opposite the black spar buoy No. 107—Q.

Latitude, N.  $46^{\circ} 32' 17''$

Longitude, W.  $72^{\circ} 10' 23''$

*Ile aux Tourtes, Lake of Two Mountains, Ottawa River.*—A red spar buoy has been moored on the north side of the steamboat channel to mark a small shoal with a depth of 5 feet over it at low water lying northeastward of Ile aux Tourtes, about  $1\frac{1}{4}$  miles above Ste. Anne de Bellevue.

#### Gas Buoys.

*Cap a la Roche, No. 92—Q.*—An automatic gas buoy, painted red, showing an occulting white light.

*Pointe aux Trembles.*—The black can buoy known as No. 157—M, has been replaced by a gas buoy, painted black. The light is an occulting white light, and the illuminant acetylene.

Latitude, N.  $45^{\circ} 37' 58''$

Longitude, W.  $73^{\circ} 29' 11''$

#### Discontinuance.

*Point du Lac.*—The lightship temporarily maintained at this curve has been discontinued.

*Cap a la Roche, No. 92—Q.*—Red conical buoy.

*River St. Lawrence Ship Channel, between Quebec and Montreal.*—Red conical buoy No. 78—Q.



## ONTARIO.

*New Lights.*

*Cobourg, Lake Ontario.*—Gas lighted beacon has been established on the outer end of the extended pier. The light is white, occulted at short intervals. The illuminant is acetylene.

Latitude, N.  $43^{\circ} 56' 57''$   
Longitude, W.  $78^{\circ} 8' 58''$

*Onderdonk Point, Bay of Quinte.*—A lighthouse has been established at this point.

Latitude, N.  $44^{\circ} 4' 39''$   
Longitude, W.  $77^{\circ} 32' 25''$

The illuminating apparatus is dioptric of the 7th order. The light is fixed white.

*Sister Rock, Wabuno Channel, Parry Sound approach.*—A lighted beacon has been established on the south end of this rock. The light is fixed white and shown from a lens lantern.

Latitude, N.  $45^{\circ} 14' 19''$   
Longitude, W.  $80^{\circ} 13' 10''$

*Victoria Harbour, Georgian Bay.*—Range lights.

*Front.* Lighthouse stands on Bergie point. The light is fixed red. The illuminating apparatus is dioptric of the 5th order.

Latitude, N.  $44^{\circ} 45' 20''$   
Longitude, W.  $79^{\circ} 47' 00''$

*Back.* Lighthouse stands on the hill behind the village. The light is fixed red. The illuminating apparatus is catoptric.

*Shaganash Island, Lake Superior.*—A lighthouse has been erected on the western end of island No. 10, a small island lying to the westward of Shaganash island. The light shown therefrom is fixed white and the illuminating apparatus is dioptric of the 5th order.

Latitude, N.  $48^{\circ} 26' 10''$   
Longitude, W.  $88^{\circ} 28' 50''$

*Island No. 118—A, Thousand Islands, River St. Lawrence.*—A light has been established on this island which lies about 500 feet to the southward of Bridge island.

Latitude, N.  $44^{\circ} 27' 58''$   
Longitude, W.  $75^{\circ} 50' 5''$

The light is fixed white and shown from a 31-day Wigham lamp.

*Southeast Shoal, Pelee Passage, Lake Erie.*—The lightship heretofore maintained by the Lake Carriers' Association has been replaced by a steel lightship maintained by the government of Canada.

There are two fixed white lights shown from 7th order lens lanterns hoisted on arms projecting from the foremast.

The boat is equipped with a steam fog whistle. The lightship is fitted with a submarine bell which, during thick or foggy weather will strike the number three every 14 seconds as follows,—three strokes at intervals of two seconds followed by an interval of ten seconds.



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*Waubashene, Georgian bay.*—Range lights established. The lights are fixed red shown from lanterns on poles. The illuminating apparatus in each consists of a 32 c.p. incandescent electric lamp placed in the focus of a paraboloidal reflector.

(1) One range will be known as Seven river range, it stands on the east side of Sturgeon bay about one-third mile west of Waubashene village. The front light of this range stands on the shore three-eighth mile S.  $85^{\circ}$  W. from the Roman Catholic church.

Latitude, N.  $44^{\circ} 45' 20''$

Longitude, W.  $79^{\circ} 43' 00''$

The back light stands 400 feet S.  $6\frac{1}{4}^{\circ}$  from the front light.

(2) A second range, which will be known as Waubashene range, is on the flat north of the channel opposite the village. The front light stands on the west end of an inlet at Waubashene, one-eighth mile N.  $59^{\circ}$  east from extremity of the northerly point on south side of channel.

Latitude, N.  $44^{\circ} 45' 43''$

Longitude, W.  $79^{\circ} 42' 17''$

The back light stands on the east end of the islet, 500 feet S.  $84^{\circ}$  E. from the front light.

*Improvements.*

*Burlington bay, Lake Ontario.*—The main light at this point has been improved by the substitution of a 4th order dioptric illuminating apparatus for the catoptric apparatus formerly used. The illuminant is petroleum vapour burned under an incandescent mantle. The light remains fixed white.

*Gercaux island, North channel.*—The five mammoth lamps and reflectors heretofore in operation have been replaced by a 4th order lens. The illuminant is petroleum vapour burned under an incandescent mantle.

*McTavish point, Ottawa river.*—The light shown heretofore from a lantern on a pole has been replaced by a light shown from a lighthouse. The light is fixed white and the illuminating apparatus dioptric of the 7th order.

*Red rock, Georgian bay.*—The fixed white light shown at this point has been changed to an occulting white light visible 8 seconds and eclipsed 4 seconds alternately. The illuminant is petroleum vapour burned under an incandescent mantle.

*Port Burwell, Lake Ontario.*—The catoptric light, consisting of three No. 1 burners and reflectors, has been replaced by a dioptric 4th order light. The illuminant is petroleum vapour burned under an incandescent mantle.

*Port Maitland, Lake Erie.*—The catoptric light heretofore in operation at this point has been replaced by a dioptric 4th order light. The illuminant is petroleum vapour burned under an incandescent mantle.

*Kincardine, Lake Huron.*—The alternating red and white catoptric light has been changed to a flashing white light, showing one bright flash every 20 seconds. The illuminating apparatus is dioptric of the 4th order and the illuminant petroleum vapour burned under an incandescent mantle.

*Port Arthur, Lake Superior.*—The fixed white light shown from the lighthouse on the southern end of the northern breakwater has been changed to an occulting white light, visible 5 seconds and eclipsed 3 seconds alternately. The illuminating apparatus is dioptric of the 4th order.



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*Port Stanley, Lake Erie.*—The light of the acetylene beacon at this point has been changed from a fixed red to a white light, occulted at short intervals.

*Other Aids.*

*Aultsville, River St. Lawrence.*—The following buoys have been established to mark the channel between Steens island and the north shore of the River St. Lawrence in the vicinity of Aultsville:—

1. Red spar buoy in 15 feet of water on the shoal on the north side of channel, north of eastern extremity of Steens island.

2. Black spar buoy in 15 feet of water at east end of rush bed north of Steens island and about 200 feet west of its eastern extremity.

3. Red spar buoy in 13 feet of water on the north side of channel about 50 feet from the shore and 1,000 feet west of Aultsville dock.

4. Red spar buoy at the upper entrance of Aultsville channel in 17 feet of water and 400 feet from the shore.

*Howe island, Thousand Islands, River St. Lawrence.*—A spar buoy, painted in red and black horizontal bands, has been established on the middle of the 13-foot shoal two-third miles off the south shore of Howe island.

Latitude, N.  $44^{\circ} 16' 35''$ .

Longitude, W.  $76^{\circ} 12' 11''$ .

*Port Arthur, Lake Superior.*—A fog bell operated by machinery has been established at the lighthouse on the southern end of the northern breakwater. It will, during thick or foggy weather, give one stroke every 6 seconds.

*Tobermory.*—Hand fog horn.

*Black Bear island, Man.*—Hand fog horn.

*Cox reef, Man.*—Hand fog horn.

*George island, Man.*—Hand fog horn.

*Gull harbour, Man.*—Hand fog horn.

*Gas Buoys.*

*Grass island.*—Station No. 87—F, No.  $8\frac{1}{2}$  gas buoy.

*Jackass shoal, River St. Lawrence.*—Station No. 72—U, gas buoy painted red, showing an occulting white light.

*Niagara river.*—Gas and bell buoy.

*Renshaw island.*—Station No. 83—F, gas buoy.

*Discontinuance.*

*Cobourg, Lake Ontario.*—Fixed white pole light on east pier. Fixed red pole light at bend of west pier.

*Jackass shoal, River St. Lawrence; Station No. 72—U.*—Red spar buoy.



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## BRITISH COLUMBIA.

: *New Lights.*

*Friendly Cove, Nootka Sound.*—A lighthouse has been established on the summit of the middle and largest island of the St. Miguel group lying off the entrance to this cove. The illuminating apparatus is dioptric of the 4th order.

Latitude, N.  $49^{\circ} 35' 27''$   
Longitude, W.  $126^{\circ} 37' 35''$ .

*New Lights.*

*False Creek, English Bay, Burrard Inlet.*—A pole with a cross arm at the top, from which two lanterns are suspended, has been erected at the south end of Nicola street, city of Vancouver.

Latitude, N.  $49^{\circ} 16' 41''$   
Longitude, W.  $123^{\circ} 8' 28''$

The light shown from each lantern is fixed red. The illuminant is electricity.

*Lardo.*—A fixed white light shown from an anchor lens lantern hoisted on a mast.

*Patey Rock, Saanich inlet.*—Beacon showing a fixed white light.

*Proctor, Kootenay Lake, West Arm.*—(1) The light at this point has been fitted with a red sector. The light shows white from S.  $47^{\circ}$  W., through south to east, and the remainder, showing over the west arm of Kootenay lake is red.

(2) Range lights have been established at Proctor to show the entrance to west arm of Kootenay lake. The lights are fixed white shown from pressed lens lanterns hoisted on poles.

*Somass River, Vancouver Island.*—A pile beacon showing a fixed white light.

*Triangle Island, Vancouver Island.*—A lighthouse has been erected on the summit of this island, which is the westernmost of the Scott islands. The light is flashing white, showing a group of four bright flashes every ten seconds, thus:

Flash.. . . .	.28 seconds.
Eclipse.. . . .	1.28 "
Flash.. . . .	.28 "
Eclipse.. . . .	1.28 "
Flash.. . . .	.28 "
Eclipse.. . . .	1.28 "
Flash.. . . .	.28 "
Eclipse.. . . .	5.04 "

The illuminating apparatus is dioptric of the first order, and the illuminant petroleum vapour burned under an incandescent mantle.

Latitude, N.  $50^{\circ} 51' 48''$   
Longitude, W.  $129^{\circ} 4' 50''$

*Improvements.*

*Active Pass, Mayne Island.*—The light at this point has been improved by the substitution of a 5th order dioptric illuminating apparatus for the 6th order lens heretofore used. The illuminant is petroleum vapour burned under an incandescent mantle.



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*Portlock Point, Prevost Island, Trincomali channel.*—The 7th order lens heretofore in use has been replaced by a 5th order dioptric illuminating apparatus. The illuminant is petroleum vapour burned under an incandescent mantle.

*Prospect Point, First Narrows, Burrard Inlet.*—The light at this point has been changed from fixed white to an occulting white light, visible six seconds and eclipsed three seconds alternately. The illuminating apparatus is dioptric of the 5th order and the illuminant petroleum vapour burned under an incandescent mantle. For the purpose of diminishing the brightness of the light to vessels in its close proximity, a red sector has been inserted in this light to show over an arc of  $135^{\circ}$  from S.  $60^{\circ}$  E. to S.  $75^{\circ}$  W.

*Georgina Point, Mayne Island, Active Pass.*—The fixed white light at this point has been changed to an occulting white light, visible five seconds and eclipsed five seconds alternately.

#### *Other Aids.*

*Bamford Islands, Malacca Passage, Chatham Sound.*—A beacon has been erected on the northernmost rock that dries off the reefs, three cables eastward of these islands.

Latitude, N.  $54^{\circ} 4' 7''$

Longitude, W.  $130^{\circ} 17' 51''$

The beacon is a concrete structure, the lower portion being square and the upper portion tapering.

*Clarke Rock, Horswell Channel.*—The black platform buoy which has heretofore marked this rock has been replaced by a black steel can buoy.

*David Point, Lowe Inlet.*—White slatwork day beacon.

*First Narrows, Western Entrance, Burrard Inlet.*—The gas lighted beacon on the northern shore has been moved to a new position 300 feet N.  $39^{\circ}$  W. from the old site.

A fog bell operated by machinery has been placed on the concrete base of the beacon. It will, during thick or foggy weather, be sounded at short intervals.

*Porpoise Harbour Entrance, Chatham Sound.*—Spar buoy, painted red.

*Second Narrows, Burrard Inlet.*—Two wooden pile beacons, consisting of five piles each, and each surrounded by a lattice-work drum painted white, have been established to show the extent of the shoal ground east and west of Seymour creek.

*Second Narrows, Burrard Inlet.*—Steel can buoy painted black surmounted by a cage.

*Stockholm island, Clayoquot sound.*—A concrete beacon has been established on a rock which dries 5 feet off this island, in the eastern end of Village channel. The beacon is square in plan, has the natural grey colour of concrete and rises 5 feet above high water mark. The concrete is surmounted by a wooden topmark consisting of a lattice-work ball 6 feet in diameter, the whole showing 10 feet above the concrete and painted red.

*Tree Bluff (Jap point), Chatham sound.*—A steel can buoy surmounted by a lattice-work drum, the whole painted black, has been established off the western extremity of the shoal ground westward from this point, south side of entrance to Big bay.

*Victoria harbour, Vancouver island.*—Spar buoy, painted red and black horizontal bands, to mark a small isolated rock on the western side of the fairway.



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*Rock point, Vancouver island, about  $\frac{3}{4}$ -mile west of Rocky bay.*—Cone-shaped wooden day beacon painted white.

Latitude, N.  $50^{\circ} 20' 11''$ .

Longitude, W.  $125^{\circ} 29' 57''$ .

*Ripple point, Vancouver island.*—Cone-shaped wooden day beacon painted white.

Latitude, N.  $50^{\circ} 21' 45''$ .

Longitude, W.  $125^{\circ} 34' 36''$ .

*West Thurlow island.*—Cone-shaped wooden day beacon painted white.

Latitude, N.  $50^{\circ} 22' 23''$ .

Longitude, W.  $125^{\circ} 45' 28''$ .

*Gas Buoys and Beacons.*

*Camp island, Loma passage.*—A gas lighted beacon has been established at the south end of this island.

Latitude, N.  $52^{\circ} 6' 6''$ .

Longitude, W.  $128^{\circ} 8' 43''$

The light is automatically occulted at short intervals and the illuminant is acetylene.

*Crane islet, New Channel, Queen Charlotte sound.*—Automatic acetylene gas beacon showing a white occulting light.

Latitude, N.  $50^{\circ} 50' 42''$ .

Longitude, W.  $127^{\circ} 31' 25''$ .

*Cortez island, Strait of Georgia, Station No. 50.*—Automatic gas and bell buoy painted red. The light is a white light occulted at short intervals. The illuminant is acetylene.

*Helmicken island, Johnstone strait.*—A gas lighted beacon has been established at the south end of this island.

Latitude, N.  $50^{\circ} 23' 51''$ .

Longitude, W.  $125^{\circ} 52' 10''$ .

The light is automatically occulted at short intervals and the illuminant is acetylene.

*Low island, Hecate strait, Queen Charlotte islands.*—Automatic acetylene gas beacon showing an occulting white light.

Latitude, N.  $52^{\circ} 54' 40''$ .

Longitude, W.  $131^{\circ} 30' 50''$ .

*Mary Anne point, Galiano island, Active pass.*—Automatic acetylene gas beacon showing a red occulting light.

Latitude, N.  $48^{\circ} 51' 29''$ .

Longitude, W.  $123^{\circ} 18' 45''$ .



(ENCLOSURE No. 2)

STATEMENT, by provinces, showing the number of lights of the several orders, lightships, lightboats, lightkeepers, fog alarm stations, warning buoys and submarine bells.

	Lightstations.	1st order lights.	2nd order lights.	3rd order lights.	4th order lights.	5th order lights.	6th order lights.	7th order lights.	Pressed lens lights.	Catoptric lights.	Electric bulb lights.	Total.	Lightships.	Lightboats.	Lightkeepers.	Fog alarm stations only.	Diaphones.	Fog guns and bombs.	Fog horns and trumpets.	Fog whistles.	Sirens.	Fog bells.	Hand fog horns.	Hand fog bells.	Gas buoys.	Whistling buoys.	Bell buoys.	Submarine bells.
New Brunswick.....	117	...	2	5	10	9	7	62	13	38	1	147	1	1	121	4	8	...	6	2	...	3	19	...	23	4	7	1
Nova Scotia.....	241	4	4	7	10	17	29	64	20	113	5	273	2	...	260	2	15	1	2	6	...	5	46	...	30	17	41	4
Prince Edward Island.....	49	...	...	...	10	...	1	4	1	59	...	75	...	...	49	...	1	1	1	...	...	...	2	...	6	2	1	...
Quebec.....	139	5	7	14	12	7	7	37	8	84	...	181	5	...	151	2	23	6	1	3	1	...	16	2	37	2	1	4
Montreal.....	115	...	...	...	10	4	...	29	36	113	...	192	3	...	139	...	...	...	...	...	...	...	...	...	68	...	...	...
Ontario.....	225	...	4	6	30	9	12	123	24	94	9	311	1	...	190	...	23	...	1	3	1	4	38	1	78	1	3	1
Manitoba.....	6	...	...	...	1	2	...	4	...	4	...	11	...	...	6	...	...	...	...	...	...	...	4	...	...	...	...	...
British Columbia.....	60	4	1	2	6	7	3	56	13	6	3	101	1	...	60	1	13	...	1	...	...	11	4	...	18	2	2	...
Totals .....	952	13	18	34	89	55	59	379	115	511	18	1291	13	1	976	9	82	8	12	14	2	23	129	3	260	28	55	10



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The above number of lights does not include those shown from, lightships, light-boats and gas buoys. The lightkeepers number more than the stations owing to the fact that some stations have more than one lighthouse with different keepers in charge. Fog alarm stations where no lights are shown have keepers in charge and these are included in the number of lightkeepers.

Besides the above mentioned lights there are the following lights listed in the List of Lights which are not under the control of the Department:—

New Brunswick.. . . .	1
Nova Scotia.. . . .	3
Quebec.. . . .	8
Montreal.. . . .	8
Ontario.. . . .	21
British Columbia.. . . .	5

## (INCLOSURE No. 3.)

Statement showing complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year 1910-11.

## UNDER THE NOVA SCOTIA AGENCY—DISTRICT No. 1.

Station No.	Name of Station.	Description of Buoy.
24	Pubnico .....	Gas and whistling.
27	Cape Sable, Southwest Ledge.....	"
29	Brazil Rock .....	"
32	Shelburne .....	"
35	Lockeport .....	"
37	Little Hope.....	"
39	Liverpool.....	"
40	Liverpool Fairway ..	Gas and bell.
45	La Have .....	"
48	Lunenburg ..	Gas and whistling.
49	Lunenburg, East Point Ledge .....	Gas and bell.
54	North East Shoal .....	Gas and whistling.
60	Sambro .....	"
61	Outer Automatic, Halifax Harbour .....	"
62	Inner Automatic, Halifax Harbour.....	"
63	Neverfail, Halifax Harbour .....	Gas.
65	Thrumpeap.....	Gas and bell.
67	Middle Ground, Halifax Harbour.....	Gas.
68	Leopard Shoal.....	"
70	Egg Island .....	Gas and whistling.
72	Sheet Harbour .....	"
76	Liscomb.....	"
80	Isaac Harbour. ....	"
84	Whitehead.....	"
86	Canso or Grime Shoal.....	"
90	Cerberus Rock.....	"
94	Petitdegrat .....	Gas and bell.
100	Guion Island .....	Gas and whistling.
102	Louisburg ..	"
108	Flat Point.....	"
109	South-East Bar, Sidney .....	Gas.



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UNDER THE NEW BRUNSWICK AGENCY—DISTRICT No. 2.

Station No.	Name of Station.	Description of Buoy.
4-S.	Blonde Rock . . . . .	Gas and whistling.
6-S.	South-West Fairway, Yarmouth. . . . .	"
8-S.	Cape Fouchu. . . . .	"
10-S.	Hen and Chickens, Yarmouth. . . . .	Gas and bell.
12-S.	South West Ledge, Brier Island. . . . .	Gas and whistling.
14-S.	North West Ledge, Brier Island. . . . .	"
16-S.	Avon River. . . . .	Gas.
3	Old Proprietor. . . . .	Gas and whistling.
5	North Wolves. . . . .	"
7	Lepreau. . . . .	"
9	Partridge Island. . . . .	"
18	Foul Ground, St. John Harbour. . . . .	Gas.
20	Quaco Ledge. . . . .	Gas and whistling.
31	Scaumenac, Restigouche River. . . . .	Gas.
32	Point Lanir, Restigouche River. . . . .	"
34	Garde Pointe, Restigouche River. . . . .	"
36	Oak Point, Restigouche River. . . . .	"
38	Traverse, Restigouche River. . . . .	"
40	Busteed, Restigouche River. . . . .	"
42	Horseshoe Bar East, Miramichi. . . . .	"
44	Horseshoe Bar West, Miramichi River. . . . .	"
46	Caraquet Harbour, East. . . . .	"
47	Caraquet Harbour, West. . . . .	"

UNDER THE PRINCE EDWARD ISLAND AGENCY—DISTRICT No. 3.

1	Indian Rocks. . . . .	Gas and whistling
2	Point Prim. . . . .	"
3	Fitzroy Rock. . . . .	"
4	Mid Straits. . . . .	"
5	Miscouche Shoal . . . . .	"
6	Zephyr Rock, Shediac Bay, N. B. . . . .	Gas.

UNDER THE QUEBEC AGENCY—DISTRICT No. 4.

21-B.	Matane. . . . .	Gas and bell.
27-B.	Father Point. . . . .	Gas.
29-B.	Rimouski Road. . . . .	"
33-B.	Barrett Ledge. . . . .	Gas and bell.
51-B.	Pilgrim Shoal. . . . .	"
56-B.	Traverse, Middle Ground. . . . .	Gas.
58-B.	South Traverse Middle Ground. . . . .	"
59-B.	Lower Traverse. . . . .	"
60-B.	Upper Traverse. . . . .	"
64-B.	Channel Patch. . . . .	Gas and bell.
65-B.	Port Joli. . . . .	Gas.
66-B.	Goose Island Reef. . . . .	"
67-B.	Beaujeu Bank, Northeast extremity . . . . .	" and bell.
69-B.	Beaujeu, West end. . . . .	"
70-B.	Beaujeu Bank, West end. . . . .	" and bell.
77-B.	St. Thomas. . . . .	Gas.
78½-B.	St. Thomas. . . . .	"
80-B.	Grosse Isle. . . . .	"
86-B.	Madame Island Reef. . . . .	"
87-B.	Beaumont Reef. . . . .	"
89-B.	Point Levis. . . . .	"
96-B.	Lark Reef, South end. . . . .	"
102-B.	Morin Shoal. . . . .	"
106-B.	Grande Pointe. . . . .	"
110-B.	Eastern Narrows, North Traverse. . . . .	"
10-Q.	Fly Bank. . . . .	"
15-Q.	Point Nicholas. . . . .	"
24-Q.	Pointe aux Trembles . . . . .	"
28-Q.	Point St. Antoine. . . . .	"
34-Q.	Ste. Croix. . . . .	"
36-Q.	Ste. Croix Bar. . . . .	"
44-Q.	Cap Santé. . . . .	"
49-Q.	Point Platon . . . . .	"



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## MONTREAL DIVISION—DISTRICT No. 5.

Station No.	Name of Station.	Description of Buoy.
2-C.	Point Citrouille.....	Gas.
15-C.	Poulier Carpentier.....	"
20-C.	Ile Bigot.....	"
23-C.	Becancour, Lower Traverse.....	"
30-C.	Becancour Bend.....	"
39-C.	Becancour, Upper Traverse.....	"
43-C.	Cape Madeleine.....	"
55-C.	Ile aux Cochons.....	"
59-C.	Three Rivers Shoal.....	"
4-L.	Poulier Laforce.....	"
9-L.	English Bank.....	"
13-L.	Curve No. 3.....	"
17-L.	".....	"
21-L.	".....	"
25-L.	".....	"
35-L.	Pointe du Lac course.....	"
47-L.	".....	"
57-L.	Yamachiche Bend.....	"
58-L.	".....	"
67-L.	Curve No. 2 to White Buoy.....	"
79-L.	".....	"
85-L.	".....	"
91-L.	Curve No. 1 to Curve No. 2.....	"
97-L.	".....	"
100-L.	".....	"
111-L.	Ile aux Raisins.....	"
123-L.	Pointe aux Soldats.....	"
136-L.	Ile de Grace.....	"
146-L.	Nepigon Shoal.....	"
1-M.	Ile aux Foins.....	"
5-M.	St. Ours Traverse.....	"
16-M.	Bellmouth Curve.....	"
20-M.	".....	"
24-M.	".....	"
31-M.	Contrecœur Bend.....	"
45-M.	Contrecœur Junction.....	"
82-M.	Plum Island.....	"
89-M.	Verchères.....	"
103-M.	Poulier des Trois Bouées.....	"
117-M.	Cap St. Michel.....	"
124-M.	Ile des Lauriers.....	"
129-M.	Varenes Curve.....	"
133-M.	Varenes Curve.....	"
149-M.	Pointe aux Trembles Bend.....	"
157-M.	Pointe aux Trembles Curve.....	"
174-M.	Longue Pointe.....	"
175-M.	Pointe aux Trembles.....	"
177-M.	Poulier à Gagnon.....	"
181-M.	Longueuil.....	"
191-M.	Longueuil.....	"
193-M.	Longueuil.....	"
194-M.	Maisonneuve.....	"
195-M.	Ile Ronde.....	"
196-M.	Longueuil.....	"
51-Q.	Portneuf.....	"
68-Q.	Batture Simon.....	"
73-Q.	Batture du Chêne.....	"
77-Q.	Batture à Cadieux.....	"
80-Q.	Cape Charles.....	"
90-Q.	Cap à la Roche Curve.....	"
92-Q.	Cap à la Roche.....	"
97-Q.	Upper Cap à la Roche.....	"
105-Q.	Cap Levrard.....	"
110-Q.	Cap Levrard.....	"
115-Q.	Batiscan Course.....	"
119-Q.	Batture St. Pierre.....	"
123-Q.	Batiscan Anchorage.....	"
129-Q.	Batture Perron.....	"



UNDER THE PRESCOTT AGENCY—DISTRICT No. 6.

Station No.	Name of Station.	Description of Buoy.
25-F.	Gresse Point. ....	Gas.
30-F.	Soulanges Canal, Entrance.....	"
36-F.	Coteau Landing.....	"
40-F.	Hay Point.....	"
43-F.	West end of Middle Ground.....	"
46-F.	Port Lewis.....	"
48-F.	Point Mouille Flats .....	"
64-F.	Lancaster.....	"
68-F.	Island Bank.....	"
69-F.	East Lancaster Bar.....	"
76-F.	Lancaster Bar.....	"
78-F.	Squaw Island.....	"
83-F.	Renshaw Island .....	"
84-F.	Clarks Island.....	"
87-F.	Grass Island.....	"
96-F.	St. Regis Dyke, West End .....	"
16-S.	Four-fifth mile above Lachine.....	"
38-S.	Lachine Cut, Upper Entrance .....	"
48-S.	East of Lightship No. 2 ..	"
53-S.	Off Browns Point .....	"
76-S.	Between Light No. 2 and Light No. 3..	"
86-S.	Between Top Light and Ile Perrot.....	"
98-S.	Windmill Point .....	"
100-S.	Entrance to Soulanges Canal, East.....	"
102-S.	Entrance to Soulanges Canal, East.....	"
104-S.	Soulanges Canal, East.....	"
2-T.	Brockville Narrows.....	"
4-T.	Hillcrest.....	"
6-T.	Cole Shoal, Middle Ground.....	"
8-T.	Fiddlers Elbow.....	"
12-T.	Gananoque Narrows .....	"
38-T.	Wolfe Island.....	"
46-T.	Cold Bath Shoal .....	"
61-T.	Penitentiary Shoal.....	"
69-T.	West end of Middle Ground, between Snake Island and Seven Acre Shoal .....	"
102-T.	Northport Shoal .....	"
110-T.	Trenton.....	"
6-U.	Delaney Shoal....	"
8-U.	Archibald Shoal.....	"
40-U.	Farran Point .....	"
54-U.	Prunner Shoal.....	"
72-U.	Jackass Shoal.....	"
127-U.	Dixon Island .....	"
136-U.	Upper Entrance, Iroquois Canal.....	"
128-U.	" .....	"

ONTARIO DIVISION.—LAKE ONTARIO—DISTRICT No. 7.

1	Niagara.....	Gas and bell.
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LAKE ERIE—DISTRICT No. 8.

1	Bar Point.....	Gas.
2	Grub Reef .....	"
5	West Side Eastern Entrance, Bar Point Channel.....	"
6	East " " " .....	"

THAMES RIVER—DISTRICT No. 11.

1	Thames River .....	Gas.
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ONTARIO DIVISION—*Con.**ST. CLAIR RIVER—DISTRICT No. 12.*

Station No.	Name of Station.	Description of Buoy.
1	Courtwright .....	Gas.

*SARNIA—DISTRICT No. 13.*

1	Point Edward . . . . .	Gas.
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*SOUTHAMPTON—DISTRICT No. 15.*

4	Chantry Island, North.....	Gas.
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*GEORGIAN BAY—DISTRICT No. 16.*

1-P.	Vails Point ..	Gas and bell.
2-P.	Hooper Island.....	Gas.
3-P.	Middle Ground.....	"
4-P.	Three Star Shoal.....	"
5-P.	Seguin Bank.....	Gas and whistling.
6-P.	Lone Rock .....	"
7-P.	Lockerbie Rock.....	Gas.
8-P.	Surprise Shoal .....	Gas, whistling and bell.
10-P.	Kennedy Bank .....	Gas.
1-B.	Maganatawan Ledges.....	Gas.
2-K.	Entrance Key Inlet.....	"
8-K.	Murray Bend, " .....	"
14-K.	Keefer Bend, " .....	"
20-K.	Digsby, " .....	"
24-K.	Mann Reef " .....	"
26-K.	Inside Reef, " .....	"

*STURGEON RIVER—DISTRICT No. 17.*

1-N.	Sturgeon Bar .....	Gas.
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*SAULT STE. MARIE—DISTRICT No. 18.*

1	Vidal Shoal, North Side, Upper End.....	Gas.
2	" South Side, " .....	"
3	" North Side, Lower End.....	"
4	Upper Entrance, South Side..	"
5	" North Side.....	"

*PORT ARTHUR—DISTRICT No. 19.*

1	Port Arthur.....	Gas.
2	Southeast Dredged Channel, Fort William.....	"
3	Northeast " .....	"



BRITISH COLUMBIA DIVISION—DISTRICT No. 24.

Station No.	Name of Station.	Description of Buoy.
1	Lookout Island .....	Gas beacon.
2	Kyuquot .....	Gas and whistling.
19	San Juan.....	"
23	Lewis Reef.....	Gas beacon.
24	Kelp Reef.....	"
25	Dock Island.....	"
27	Helen Point.....	"
28	Mary Ann Point.....	"
29	Walker Rock.....	"
30	Coffin Islet.....	"
31	Danger Reef.....	"
32	Joan Point .....	"
33	Gabrola Reef.....	"
35	Sand Head.....	Gas and whistling
36	Grey Point.....	Gas and bell.
37	First Narrows, Vancouver Harbour.....	Gas beacon.
40	Seechelt .....	"
42	Gallows Point, Nanaimo Harbour.....	"
43	West Rocks.....	"
44	Goose Spit.....	"
45	Kelp Bar.....	Gas and bell.
47	Oyster Bay.....	"
49	Lund.....	Gas beacon.
50	Cortez Island.....	Gas and bell.
52	Gillard Island.....	Gas beacon.
53	Maud Island .....	"
54	Chatham Point .....	"
56	Helmicken Island.....	"
58	Haddington Reef.....	Gas.
60	Crane Island.....	"
64	Zero Rock.....	Gas beacon.
67	Fog Rocks.....	Gas and beacon.
69	Camp Island.....	"
70	Dall Patch .....	Gas and whistling.
72	Vancouver Rock.....	"
74	Boat Bluff.....	Gas beacon.
84	Klewnuggit.....	"
86	Watson Rock.....	"
88	Marked Tree Bluff.....	"
89	Holland Rock .....	"
92	Casey Point.. ..	Gas.
93	Georgia Rock .....	Gas and bell.
94	Spire Ledge.....	Gas.
95	Barrett Rock.....	"
96	Coast Island.....	Gas beacon.
97	Ridley sland .....	"
101	Alford Rock .....	Gas.
103	Hodgson Reef .....	Gas and whistling.
105	Pointers.....	Gas beacon.
107	Browning Entrance.....	Gas and whistling.
110	Skidegate or Lawn Point .....	"
111	Low Island.....	Gas beacon.
112	Copper Island.....	"

The whole respectfully submitted.

J. G. MACPHAIL,  
B.A., B. Sc., A.M. Can. Soc. C.E., Commissioner.

Commissioner of Lights Office,  
Department of Marine and Fisheries,  
Ottawa, April 1, 1911.



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## APPENDIX No. 3.

## RIVER ST. LAWRENCE SHIP CHANNEL.

OTTAWA, Ont., June 20, 1911.

The Deputy Minister, Marine and Fisheries,  
Ottawa, Ont.

DEAR SIR,—I have the honour to present the following annual report on the operations for the improvement of the River St. Lawrence ship channel during the fiscal year ending March 31, 1911.

I have very great pleasure in acknowledging that the success of the operations in a large measure is due to the skill and energy of the staff in charge, and also to the careful work of the officers and crews of the different vessels belonging to the ship channel fleet.

I have the honour to be, sir, yours obediently,

V. W. FORNERET, B.A.Sc.  
*Superintending Engineer.*

The ship channel of the River St. Lawrence, between Montreal and Father Point, has a total length of about 340 statute miles.

The contracted part of the river, which may properly be called 'ship channel,' commences at the Traverse, to which point from Montreal the distance is 220 miles.

The length of the channel actually requiring improvement by dredging from Montreal to the Traverse is about 70 miles. The length of the 30-foot channel actually completed at the close of navigation, 1910, is 64.05 miles, leaving 5.95 miles yet remaining to be dredged in order to give a clear depth of 30 feet at low tide during the lowest stage of the river level.

From Montreal to Batiscan the tide is not available for navigation, and in order to enable vessels to load to full depth the dredging of this part of the river was first undertaken, and is now completed.

The completed channel has a minimum width, in the straight portions, of 450 feet, and on the curves from 500 to 800 feet.

## HISTORY OF THE SHIP CHANNEL.

The St. Lawrence, owing to its situation, is the natural route from the Atlantic to the northern and northwestern half of the North American continent.

The opening of the Lachine canal, connecting Montreal with the Great Lakes, in 1825, established the route commercially.

The light-draught sailing vessels could then reach Montreal without trouble, except during a few weeks in the autumn, when they resorted to lightering.

In 1844, it was in an effort to give navigation up to Montreal for vessels of 500 tons, that the first work of dredging was undertaken.

The first proposals for improvements were discussed in 1825, the national character of the work being then recognized. Surveys were made and reported upon in 1831 and again in 1838.

In 1841, during an investigation, the committee proposed a tonnage duty sufficient to provide for the cost of the improved channel, which was considered would be



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less than that of lighterage. It was, however, agreed that 'in order to draw the produce of the west down the St. Lawrence, it was expedient to make the transit charges as light as possible.'

Operations were commenced by the 'Board of Works' in 1844 and continued until 1847 when, owing to opposition as to the location of the channel, the work was abandoned.

After 60 years it is now considered that the straight channel as commenced would have been preferable in many ways.

In 1850, the Harbour Commissioners of Montreal proposed that they could do the work more economically and expeditiously. They asked for authority to undertake the work and to charge a tonnage duty to pay for the 8 per cent interest and 2 per cent sinking fund.

This plan was adopted in August, 1850, and the commissioners were authorized to proceed in such a manner as they should deem best, the government plan being transferred to them.

The harbour commissioners after examination and the best advice obtainable, adopted the location of the deepest natural channel in Lake St. Peter. This results in the present channel with five tangents, instead of two long straight courses as at first commenced.

The original depth through Lake St. Peter was 10 feet 6 inches.

From 1850 the channel was deepened from stage to stage until in 1888, when the debt amounted to somewhat over three million dollars, the government decided to complete the channel as a national work, and to assume the debt, and from that day the channel has been open free to the commerce of the world.

At that date the channel had been deepened to 27½ feet at ordinary low water from Montreal to Cap à la Roche, and from there to Quebec the tide was available.

Nearly 20,000,000 cubic yards had been dredged at an average cost of about 20 cents per yard, including the cost of the plant

A dredge of the type of 1846, excavated in Lake St. Peter in one day, 1,200 cubic yards. By wonderful improvements in 1888, a dredge of that time could make 7,200 yards without trouble. At the present time, working day and night, the Lake St. Peter dredge removes at a fairly average rate 20,000 cubic yards per day.

The work was then conducted by the Department of Public Works of Canada from 1889 until 1904, when the management and control of the river, together with the shops and dredges, were handed over to the Department of Marine and Fisheries, which department had general charge of navigation.

At the present time a splendid channel of 30 feet at extreme low water exists from Montreal to Cap à la Roche, and to Quebec by taking advantage of the tide.

The success of the work is in a great measure due to the geographical situation of the route, the physical features of the river favourable for improvement, the determination and public spirit of the business men and industrial corporations of Montreal, and to the recognition by the government of Canada of the national character of the project.

#### THE PRESENT PROJECT.

The present project for a 30-foot channel between Montreal and Quebec was adopted in 1889, while the improvements below Quebec were decided upon in 1906.

The estimate of 1899 was for ten years work. The plant was only partially available until 1903.

The project for the channel between Montreal and Quebec had in view a channel of 30 feet depth, at the extreme low water of 1897, from Montreal to tide water at Batiscan, and from Batiscan to Quebec at extreme low tide. The width contemplated was a minimum of 450 feet in the straight portions and from 550 to 750 feet at the bends. An anchorage was to be provided for Lake St. Peter.



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Of this work, the 30 foot channel from Montreal to tide water at Batiscan was completed in 1906. This is now in use, deep draught vessels in the autumn waiting for tide, to pass Cap à la Roche and St. Augustin bar.

The work remaining to be done is about 1½ miles of shale rock at Cap à la Roche; about ¾ of a mile at Grondines; about 1 mile at St. Augustin bar; also about 1 mile of widening at Ste. Croix.

Cap à la Roche will probably take from two to three years to complete, while the remainder to Quebec should be completed at the same time, or in one year longer.

The project of work below Quebec, had in view a 30-foot channel at low tide at St. Thomas Flats, and at Beaujeu Bank, everywhere 1,000 feet wide.

The Beaujeu bank channel was completed in 1909 and widened in 1910.

The St. Thomas channel where the material is clay and sand is expected to be finished in 1911.

ACCIDENTS IN 1910.

River St. Lawrence Ship Channel between Montreal and Father Point.

Only one accident of any importance took place in the ship channel during the season of 1910. This occurred on May 10 when the steam-ship *Grampian*, of the Allan line, inward bound from Glasgow to Montreal, went aground on the north bank of the channel at Cap à la Roche during a sudden storm which obliterated all marks. She floated at high tide and proceeded under her own steam to Montreal. The bottom was found to be damaged and the steamship had to go into dry dock for repairs.

An unusual accident happened in Montreal harbour. This was the sinking of two sand barges in the old channel. The barges were being towed up when the tow-line suddenly parted, and the barges collided and damaged themselves to such an extent that they sank immediately. During the winter the wrecks were cleared away.

The following are the few minor accidents which happened in the channel:—

May 30.—SS. *Crown of Castile* touched slightly on south bank between buoys 91 and 95, at Cap à la Roche.

July 11.—SS. *Stigstad* touched slightly on edge of bank, Cap à la Roche. No damage.

September 23.—C.P.R. SS. *Montcalm* and Dominion Coal SS. *Kron Prinz Olaf* collided at Channel Patch. Both boats were somewhat damaged.

November 6.—Canada line SS. *Prince Adalbert* while manœuvring to turn around near Vercheres, P.Q., collided with a barge which was being towed up river, damaging the latter slightly.

MARINE SIGNAL SERVICE.

River St. Lawrence Ship Channel.

There are twelve stations established at the following places:—

Locality.	Distance in nautical miles from Montreal.	In operation.
Montreal.....	00	Day and night.
Longue Pointe .....	5	"
Verchères.....	19	During daylight.
Sorel.....	39	Day and night.
Three Rivers.....	71	"
Batiscan.....	87	During daylight.
St. Jean des Chaillons .....	93	Day and night.
Portneuf .....	108	During daylight.
St. Nicolas.....	127	Day and night.
Bridge.....	133	During daylight.
Quebec.....	139	Day and night.
Crane Island.....	171	"



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The above stations are connected by a private through telephone system, terminating at Quebec and Montreal, with the exception of Crane island, which communicates with Quebec *via* the Bell Telephone Company's system.

Each station has a mast 60 feet in height with a cross spar 20 feet long about 20 feet from the top of the mast.

When a station is in operation a 'Jack' is hoisted to the mast-head during daylight and a white light at night.

Signals displayed at west end of cross spar indicate river or points above station.

Signals displayed at east end of cross spar indicate river or points below station.

For other communications between vessels and stations or vice versa, the International Code of Signals is used.

The telephone service was started September 1, 1907 and the system of signals on November 5, 1908.

The combined service of telephone and signals has proved to be very useful, weather conditions being reported from the different stations along the river. The whereabouts of vessels can also be obtained.

Owing to its promptness, the service has been of great value in connection with the dredging operations, as in the event of breakages, &c., communication can immediately be obtained with the shops at Sorel, and orders can then be given for repairs, thereby saving a great deal of valuable time.

The stations were kept in good repair during the past season and some minor improvements were made to some of them.

As the Cap Rouge station was not considered to be in a very suitable position for reporting ice-conditions in connection with the ice-breaking operations, a much better point was found just above the Quebec bridge site on the south shore about a mile below the Cap Rouge station.

The signal station at Cap Rouge was situated in a private residence, therefore it was necessary to provide a building for the new site, which was called 'Bridge Station.' The original signal station at Vercheres being no longer needed since the old Windmill was restored for use as a station, it was towed down last autumn to Bridge Station on a scow, and placed in position at that point.

The advisability of this change was proved during the past winter, as more accurate reports were obtained about the ice-conditions on the river, and when a jam occurred it was reported promptly to the captains of the ice-breakers at Quebec, who lost no time in proceeding to the locality to break it up.

OTTAWA, May 2, 1911.

A. JOHNSTON, Esq.,  
Deputy Minister of Marine and Fisheries,  
Ottawa, Ont.

SIR,—I beg to respectfully submit Mr. N. B. McLean's report on the ice-breaking operations between Quebec and Montreal during the winter of 1910-11.

It will be noted that the St. Lawrence ice-conditions during the past winter were most severe, but notwithstanding this fact the results obtained were very satisfactory.

Although the opening of navigation was not hastened as much as the previous season, the prevention of floods in the low lying districts was successfully accomplished, thereby saving the inhabitants much suffering and loss of property.

It is generally admitted that had the ice-breakers not been in operation during the winter, conditions indicated that disastrous floods would have occurred in the spring.

The usefulness of the ice-breakers was again proved when owing to an accumulation of ice below the foot of the Soulanges canal, vessels from above were prevented



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from passing down. On the department being notified the *Lady Grey* was ordered to proceed immediately to Soulanges.

The ice-breaker arrived there at 11 a.m. on May 2, and commenced breaking up the jam.

The ice was found to be from 20 to 40 feet in thickness in some places and composed mainly of frazil.

After several hours of strenuous work the *Lady Grey* succeeded in cutting her way through, thereby allowing six large lake steamers which were held up, to pass down. Had the ice-breaker not been available there is no doubt that these vessels would have been delayed for several days longer.

The successful work accomplished during the winter by the two ice-breakers, *Lady Grey* and *Montcalm* is a credit to Mr. N. B. McLean, assistant engineer, who was in direct charge of these operations, and to the officers and crews of these steamers.

I am, sir,

Yours obediently,

V. W. FORNERET,  
*Superintending Engineer.*

SOREL, May 1, 1911.

SIR,—I have the honour to submit the following report on the work of the ice-breakers *Lady Grey* and *Montcalm* during the winter of 1910-11.

The season just closed was one of the most severe for many years, not only was it extremely cold, but it was also of long duration, beginning early in December and continuing well on into April. The meteorological observations taken at McGill observatory, Montreal, show that the mean temperature for the winter was considerably below the mean temperature for the last 37 years, and that the percentage of possible sunshine was also very low. This lack of sunshine, coupled with low temperature, is important, as ice and frazil is much more rapidly formed on cloudy days than on days when the sun is shining.

The ice-bridge formed at Three Rivers on December 8, and by December 15 the river was covered with ice from this point to Montreal.

The close of the winter of 1910-11 marks the third season's serious ice-breaking operations in the River St. Lawrence between Quebec and Montreal.

In 1908-9 the *Montcalm* worked alone, and the ice-bridge at Cap Rouge was allowed to form before operations were begun. The following year the system was changed, and two ships, the *Montcalm* and *Lady Grey*, were employed in place of one. The intention was to keep Cap Rouge open if possible, as it was generally conceded that with this point clear the river would remain free of ice for a considerable distance above. This attempt proved successful and the river remained open to Three Rivers.

The plan of operation that was followed in 1909-10 having been satisfactory, the same system was continued this year, the *Montcalm* and *Lady Grey* patrolling the river on alternate days between Quebec and St. Nicholas, with both ships always ready for an emergency.

No difficulty was experienced in keeping Cap Rouge open all winter, though several heavy jams and two or three minor ones occurred.

On January 17 the ice blocked at Batiscan. Previous to this date the river had been open from Quebec to Three Rivers. Following this, on January 21, a jam occurred at Grondines, and on the 23rd another at Portneuf. In a very short time these jams had assumed serious proportions. The river was covered with ice in three



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days from Batiscan almost to Three Rivers. At Portneuf by January 29, the ice had backed up to the Richelieu rapids, and the blockade was four miles long. The Grondines jam had also considerably increased in size.

From January 26 to 28, inclusive, the *Lady Grey* made three attempts to reach Portneuf, but owing to heavy snowstorms was not able to pass St. Nicholas, and it was only on January 29 that it was possible to get through.

It was found that the jam there was about four miles long, much heavier than was expected, the lower end being about half a mile above Platon wharf and the upper end slightly below the light on Richelieu island.

After six and a quarter hours' work, when it was time for the ship to return to Quebec, about two miles advance had been made, leaving two miles more to be cut through before arriving at the open water at the foot of the Richelieu rapids.

Owing to adverse weather conditions on January 30 and 31 it was impossible to continue the work at Portneuf, and after the latter date the *Lady Grey* had to be on duty at Quebec, as the *Montcalm* was leaving for a trip to Seven islands.

Very serious floods were likely to follow as the result of the river being blocked from Portneuf upwards, so it was decided that the work of opening the upper reaches should be commenced immediately after the return of the *Montcalm*.

The *Montcalm* returned from Seven Islands on February 12, but owing to bad weather and heavy ice the *Lady Grey* was not able to proceed up the river till February 15. On this date the work of breaking up the ice began abreast of Platon wharf.

It was found that this jam was a much more serious proposition than it was on January 29, and that it consisted in the main of a heavy bank of frazil, the most difficult of all ice to break up. This bank was a mile to a mile and one-half in length by a half to three-quarters of a mile in width, and was situated in the bend opposite Portneuf. The same formation was found at this point in the spring of 1909. After a great deal of difficulty this mass of frazil was cut free on all sides, but even then it would not move. This was difficult to understand for a moment, but there could be only one explanation, it was grounded, and grounded where the chart showed from 60 to 80 feet of water. To get rid of it it was necessary to break it up little by little, and it was February 23 before it was finally disposed of. Large numbers of the smaller pieces broken off from the main bank were strung out and stranded as far down as St. Antoine, and there was a great number of these in and near the Cap Santé-Ste. Croix channel; in fact, so numerous were they that there was danger of a jam being formed and they had to be cleared out. These small icebergs stood from 12 to 15 feet out of water at low tide. After the last of the heavy frazil ice had been sent down on February 23, the cut was carried up stream through ice from 1 to 3 feet thick, with here and there heavy ridges of packed ice and frazil, and on February 27 the *Lady Grey* cut through into open water at the foot of the Richelieu rapids, about one-quarter of a mile above Richelieu island light.

This five mile stretch from Platon wharf to the Richelieu marked the first stage in the operations of opening to river to Montreal, and twelve days was required to do the work, giving a rate of advance per day of not quite half a mile. This was by far the heaviest and most difficult work executed by the ice-breakers during the season.

The open water extended from one-quarter of a mile above Richelieu island light to about half a mile below Langlois light, a distance of five miles. At this point on March 2 the *Lady Grey* began the second stage of the operations. Work was carried on steadily and by March 9, the head of the cut had been pushed to about 1 mile above Cap à la Roche curve, and the second stage of the operations, 8½ miles in length was completed, seven days being required for the work, giving an average rate of advance per day of 1¼ miles. The ice broken on this stretch varied from one to three feet in thickness with occasional ridges and pockets of packed ice and frazil.

At this point the *Lady Grey* returned to Quebec for coal and general supplies, and was replaced by the *Montcalm*.



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It must be understood, that the work of cutting up stream could not be carried ahead continuously without interruption, for there were numerous delays from various causes. It was necessary to return to Quebec from time to time for coal; the work was interrupted by fog and snow; battures broke away on either side and the ship had to drop back so as not to be cut off, and very frequently had to re-clear the channel; as the cut was pushed ahead the narrow channel had to be widened to as great a width as possible.

The third stage of the operations from above Cap à la Roche curve to Three Rivers, a distance of 24½ miles, was completed in seven days, the *Lady Grey* arriving at latter place on March 16, making an average advance per day of practically 3½ miles.

It was the intention to operate the *Montcalm* and *Lady Grey* together from above Cap à la Roche, but unfortunately, this was only possible for one day on the stretch to Three Rivers, as the *Montcalm* broke two propeller blades and had to return to Quebec for repairs. On the day the two ships were able to work side by side 6 miles of channel was opened. The best day's work for one ice-breaker was 4½ miles and the least was about 2 miles. The ice between Cap à la Roche and Three Rivers averaged pretty well from 12 to 20 inches with occasional pockets of packed ice and frazil.

From March 17 to 19, inclusive, widening was carried on between Cap à la Roche and Three Rivers. When this was completed the channel between these two points was nowhere less than 1,500 feet wide and in many places 2,000 feet or more.

The *Montcalm* arrived back from Quebec on March 18, having completed the repairs to her propellers.

On the morning of March 20, the work of cutting up stream began once more, the *Montcalm* and the *Lady Grey* working side by side. On this stretch the cut was pushed ahead rapidly, as the two ships were able to work together a good part of the time; and on March 29 the *Montcalm* arrived at Sorel.

The channel between Three Rivers and Sorel, a distance of 37 miles, was opened in ten days, giving an average rate per day of 3¾ miles. The *Lady Grey* was absent four days out of the ten, breaking up jams that had formed below Three Rivers. The ice broken varied from 18 to 26 inches in thickness with some packed ice and frazil in the Sorel islands.

Widening operations were carried on wherever possible between Pte. au Bigot and Sorel from March 30 to April 6, inclusive. Below Three Rivers the least width of channel was 1,800 feet at Becancourt bend, after this widening was completed, and above Three Rivers to the foot of the lake the river was cleared of ice nearly to summer width, the channel through the lake and the Sorel islands was opened to its full width, and from the islands to Sorel there was nowhere less than 1,500 feet.

On April 7 and 8, the two ships were engaged cutting up stream again, and on the latter date had arrived opposite Lanoraie, 8¾ miles above Sorel. The ice on this stretch, even at this late date, was very heavy there being a great deal of packed ice and frazil.

The next day, April 9, a jam occurred at the foot of the lake. This indicated that the ice was growing weak, so it was decided, that it was unsafe to push the cut any further up above Sorel till the lake should be clear.

The lake was considered to be the fifth stage of the operations, and perhaps the most important of all, for there can be no question of navigation to Montreal, as long as there is ice in Lake St. Peter.

With Lake St. Peter free of ice, and if the river above is not clear, work can be carried on with perfect safety; on the other hand should a general shove occur in the lake and the ice-breaker caught above it, its usefulness is practically finished for that season for it will not be possible for the ship to cut her way down stream through the many miles that would intervene between her and Nicolet Traverse, and the ice must pass out, as it has done in former years, aided only by nature.



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Before ice-breakers were brought into use the lake ice did not move till the warm waters from the rivers to the south had practically cut a channel along the south side, and the old rule was, that six or seven days must elapse after the Richelieu river was clear of ice before any movement took place in the lake.

Lake St. Peter is roughly 21 miles long by 7 miles wide with an area of about 140 square miles. This 140 square miles of ice must pass out at the lower end through a channel  $1\frac{1}{2}$  miles wide. With the aid of ice-breakers this can be worked through in about three days, but if left to nature, it required considerably longer.

A plan of operations for the work in the lake had been decided upon, based on three year's experience and on information of a general character gathered from various sources. This plan was strictly adhered to in spite of a great deal of adverse criticism.

Professor H. T. Barnes, F.R.S., of McGill University, has demonstrated by the aid of his delicate electric thermometer, that directly the ice has been cleared from a section of channel the water in that section immediately begins to absorb heat from the sun. It was the intention to apply that heat to aid and expedite if possible the clearing of Lake St. Peter of ice. For that reason the channel above the lake was opened as far up as the time permitted, in this case only to Lanoraie. Had more time been available the work would have been pushed further up stream. As had been noted several times before, the current sets pretty well across from Ile aux Raisins Traverse to Nicolet pier. It was hoped that the heat absorbed by the water would be given up in cutting the ice between these two points.

From April 12 to April 15, the *Lady Grey* was engaged widening from Nicolet Traverse to No. 2 Curve, and this portion of the lake was cleared out much wider than had ever been done before. At the Traverse the opening was  $1\frac{1}{2}$  mile wide, gradually getting narrower till at the white buoy curve it was about three-quarters of a mile in width, and decreasing again to No. 2 curve, where it was a quarter of a mile wide.

When the *Lady Grey* arrived at Nicolet on Sunday, April 16, it was found that there had been a general movement of the lake ice during the night, and by April 19, after three days hard work, the whole of the central portion of the lake was clear. A good deal of ice still remained on the north and south sides.

The next day, April 20, a general inspection was made from end to end of the lake, and it was found that the ice on the north side was so honeycombed that no further trouble in the way of jamming need be anticipated from it.

As before stated, the old rule concerning the movement of the lake ice when nature was allowed to take its course, was that it occurred only six to seven days after the Richelieu river was clear.

The Richelieu this year was free on the afternoon of Monday, April 17, consequently the lake was due to move about Sunday, April 23.

Instead of that, however, the lake moved on April 16, one day before the Richelieu was clear, and was itself practically clear on April 19, three days before it should have moved under old conditions.

The ice broke across pretty well from Ile aux Raisins to Nicolet, as was hoped; so all things considered, the plan of operations would seem to have been fairly well justified.

Work was carried on in the Sorel islands for two days breaking up jams and generally keeping the ice moving, and on April 23 the *Lady Grey* entered upon the final stage of the operations. The river was practically clear of ice from Sorel to the foot of the Contrecoeur Traverse, and above this point there was ice everywhere, but it had shoved to some extent. No great difficulty was experienced in cutting through this, and the ship proceeded up stream as far as Cap St. Michel, where another stretch of open water was found. From this point a return was made to Sorel. During the night all this ice passed out, and next morning the open water extended up to Ile aux Vaches low light. Work began here, and during the day two miles



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of channel was opened through very heavy packed ice with frazil, the head of the cut at night being abreast of Pte aux Trembles wharf. On April 25 about three miles of ice remained to be broken up before the open water below Longue Pointe could be reached. This stretch presented some difficulties, as it was entirely frazil ice solid to the bottom. However, by 4.50 p.m. the channel had all been cleared, and at 5.40 p.m. the *Lady Grey* arrived at Montreal, bringing to a close the hardest and most difficult season's work that has yet been experienced.

As has been stated in the previous report, the results to be obtained by keeping the river open in winter from Quebec to Batiscan or Three Rivers may be divided into three heads:—

- (1) Prevention of floods.
- (2) Earlier navigation to Montreal.
- (3) A longer season for dredging operations.

The first result has been obtained, as there have been no floods since serious ice-breaking operations were undertaken. The second and third results also have unquestionably been obtained, though it is impossible to state how much sooner the river has been clear of ice than it would have been if left entirely to nature. The fact that Lake St. Peter was clear three days before it was due to move according to the old rule, shows at least that some gain has been made in this direction.

From the experience gained this year I am of the opinion that the river can be kept open from Quebec to Three Rivers, even should the weather be again as severe as it was last winter.

Eighty-five and one-half miles of channel were cut by the ice-breakers. This represents channel that was actually 'bucked' out, and does not include open water stretches of channel that were easily cleared by running up and down once or twice, nor jams that had to be recleared. Eighty-five and one-half miles in seventy days gives an average rate of advance of  $1\frac{1}{2}$  miles per day, including all delays. As a result of the work, 125 miles of channel was opened.

Working in fair average ice the *Lady Grey* delivers a blow every three minutes, and the *Montcalm* one every four and one-half minutes, being rather slower in manœuvring. This gives some idea what the hull and machinery of the ice-breakers have to stand.

I have again to comment most favourably on the creditable manner in which Captains Mercier and Pelletier carried out their work throughout the winter.

I have the honour to be, sir,

Your obedient servant.

N. B. McLEAN,

V. W. FORNERET, Esq., C.E.,  
 Superintending Engineer,  
 River St. Lawrence Ship Channel,  
 Department of Marine and Fisheries,  
 Sorel.

## GENERAL INFORMATION.

A feature of the season was the inauguration of the Canadian Northern Steamship line with two vessels of high speed. Under the name of the 'Royal Line' they maintained throughout the season a fortnightly service between Montreal and Bristol. These ships are the first ocean-going vessels to sail under the Canadian flag and are named *Royal Edward* and *Royal George*.

During the course of the sweeping of the channel in 1910, no obstruction of any serious nature was found. Two or three vessels were reported to have touched above Quebec, but the most careful examination failed to reveal anything in the channel.



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Two semaphores, indicating the channel depths in their respective localities, were maintained as usual, the one at St. Jean des Chaillons for the depth in the Cap à la Roche dredged cut was put in operation on May 2, and the other at St. Nicholas showing the depth over the undredged St. Augustin bar, on May 24, 1910.

The annual trip of inspection of the river St. Lawrence Ship Channel from Montreal to Crane island, was made by the Honourable the Minister on October 6, 1910.

The steamer *Lady Grey* left Victoria pier, Montreal at 9.30 a.m., and the inspection occupied three days during which the various works between Montreal and Crane island below Quebec were visited. The minister, the Honourable Mr. Brodeur, was accompanied by his officials, representatives of the Shipping Federation of Canada, Montreal Board of Trade, La Chambre de Commerce, Montreal and Quebec Harbour Commissioners and the Montreal and Quebec Pilots.

The progress of the work at the different points gave satisfaction.

Much interest was shown in the experimental rock-cutter working at Cap à la Roche which was making good progress.

As it was uncertain what success would be obtained with this machine, it had been decided to utilize the hull and as much of the machinery as possible of the new stone-lifter under construction at the Sorel shipyard. Therefore, it had been only necessary to purchase a rock-cutter ram, and hoisting winch, which was obtained from Messrs. Lobnitz & Company, Renfrew, Scotland, the weight of the ram being 20 tons.

After the installation on the stone-lifter was completed, the machine was started to work at Cap Charles, in the Cap à la Roche section of the channel, where the shale rock is very hard, and it was soon found that the rock-cutter could break up this rock without difficulty. It took an average of five blows to penetrate three feet, the penetrations being five feet apart. The broken rock was found to be of convenient size for dredging.

Results proved that after the rock-cutter had gone over the ground, the dredge could remove about 75 per cent more material in the same given time, than it could before the rock was broken.

In addition to the large amount removed the strain on the dredge is very much less, and therefore fewer repairs are necessary, and less time lost.

The results obtained during the season of 1910 were so satisfactory that a complete machine was ordered from Messrs. Lobnitz & Company. As it was found that the 50 foot ram would be too short for the 35 foot channel, owing to the high tides, a longer one has been ordered and weighing 22 tons. This will make the new rock-cutter suitable for work on the 35 foot channel. It is expected that this machine will be ready for next season.

The Cap Levrard channel was completed before the end of the season. It is now 450 feet wide, and deepened to 30 feet at L.W. of 1897. Formerly this channel was only 300 feet in width, and 27½ feet deep at ordinary low water.

Lights were constructed on the new axis of the channel.

The thirty-foot channel is now complete to the Upper end of Cap à la Roche channel, a distance of 107½ miles from Montreal.

Some progress has been made during the last season in connection with the 35 foot dredging. Dredge No. 7 having deepened a distance of three miles on Lake St. Peter to 35 feet at L.W. of 1897. The material however, is much harder at that depth.

When the proposed additional plant to be constructed for the 35 foot project, is completed, rapid progress should be made.

As the proposed floating dry-dock to be built for Montreal harbour would be of large public utility and a great aid to navigation on the St. Lawrence, and owing to the fact that the floating dock basin to be built by the Montreal Harbour Commissioners, was at some little distance from the main channel, the Department of Marine and Fisheries agreed to dredge an approach to dry-dock. Dredging was commenced



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at the beginning of the season, and good progress was made. It is expected that this channel approach will be completed by the end of next season, to a depth of 30 feet at L.W. of 1897, and to a minimum width of 750 feet.

The total cost from 1851 to the close of the fiscal year, of the ship channel, including plant, shops, surveys, &c., is as follows:—

Dredging.. . . . .	\$8,358,332 23
Plant, shops, surveys, &c.. . . . .	3,756,770 41
Total.. . . . .	\$12,115,102 64

The total number of cubic yards dredged amounted to 73,721,627 the material varying from very hard shale rock to soft blue clay.

Year.	AVERAGE DEPTH FOR EACH MONTH IN THE 27½ FOOT CHANNEL. (27½ feet at Ordinary Low Water.)							FROM SOREL GAUGE DURING EACH YEAR MAY TO NOVEMBER	
	May.	June.	July.	August.	Sept.	Oct.	Nov.	Highest.	Lowest.
	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.
1890.....	35 6	35 3	31 9	30 6	30 9	29 9	30 6	37 0	29 0
1891.....	34 6	31 3	29 9	29 9	30 0	28 3	28 3	36 9	27 3
1892.....	31 0	31 9	31 6	30 6	28 9	28 3	28 3	33 6	27 3
1893.....	36 0	34 3	30 9	29 9	29 6	28 6	28 0	37 6	27 6
1894.....	34 6	31 9	31 0	29 2	28 3	28 9	29 0	36 0	27 7
1895.....	33 3	31 3	28 3	28 3	27 6	26 9	26 9	34 6	25 10
1896.....	33 6	30 6	28 9	28 0	27 6	27 9	29 0	37 0	27 4
1897.....	35 6	32 6	30 3	29 3	28 0	27 0	27 6	37 0	26 5
1898.....	31 6	30 9	29 8	28 2	28 2	28 3	28 6	32 1	26 9
1899.....	36 2	31 9	30 3	28 6	27 6	28 0	27 9	37 9	27 9
1900.....	33 6	30 9	30 6	29 6	28 1	28 9	29 2	35 9	27 4
1901.....	34 3	31 10	29 2	28 3	27 7	27 4	27 3	36 3	26 6
1902.....	32 2	32 2	32 2	29 4	28 1	28 1	29 0	34 1	27 6
1903.....	33 0	30 11	30 5	29 5	28 4	28 0	27 11	32 8	26 11
1904.....	36 3	34 5	30 9	29 5	29 5	30 4	29 3	37 4	28 1
1905.....	31 10	30 8	29 7	29 0	28 0	28 5	28 1	33 6	27 1
1906.....	32 4	31 5	29 3	27 11	27 3	27 4	27 6	33 3	26 9

Year.	AVERAGE DEPTH FOR EACH MONTH IN THE 30 FOOT CHANNEL (30 feet at the extreme L. W. of 1897.)							FROM SOREL GAUGE DURING EACH YEAR MAY TO NOVEMBER.	
	May.	June.	July.	August.	Sept.	Oct.	Nov.	Highest.	Lowest.
	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.
1907.....	37 1	35 9	34 3	32 10	32 4	32 9	33 7	38 3	31 10
1908.....	41 5	37 10	33 10	32 10	32 0	31 0	30 6	42 4	30 0
1909.....	40 6	37 6	33 10	33 2	32 7	32 4	31 6	42 7	30 11
1910.....	35 7	34 5	32 3	31 7	31 6	31 6	31 7	37 1	30 7



COST OF SHIP CHANNEL TO DATE.

TABLE showing the total cost of dredging and plant and the quantities dredged to March 31, 1911.

	Cost of Dredging.	Expenditure for Plant, Shops, Surveys, &c.	Quantities Dredged.
	\$ cts.	\$ cts.	Cubic Yards.
MONTREAL HARBOUR COMMISSIONERS, 1851 TO 1888.			
Dredging Montreal to Cap à la Roche to 27½ feet at ordinary low water, and from Cap à la Roche to Quebec to 27½ feet at half tide. . . . .	3,402,494 35	534,809 65	19,865,693
DEPARTMENT OF PUBLIC WORKS.			
Dredging, consisting of widening and cleaning up of channel: deepening Cap à la Roche to Cap Charles to 27½ feet at ordinary low water, and dredging at Grondines, Lotbinière and Ste. Croix, 1889 to June 30, 1899. . . . .	829,583 08	486,971 79	3,558,733
Project of 1899 :—			
Dredging channel between Montreal and Quebec to 30 feet at lowest water of 1897, also widening to a minimum width of 450 feet, and straightening.			
Fiscal year 1899-1900. . . . .	100,191 01	265,270 78	1,107,894
" 1900-1901. . . . .	136,680 83	287,040 04	2,479,385
" 1901-1902. . . . .	185,429 80	479,731 47	3,098,350
" 1902-1903. . . . .	255,776 55	277,703 50	6,544,605
" 1903-1904. . . . .	276,958 59	308,765 44	4,619,260
DEPARTMENT OF MARINE AND FISHERIES.			
This includes the work below Quebec.			
Fiscal year 1904-1905. . . . .	311,087 93	266,460 33	2,716,220
" 1905-1906. . . . .	431,768 30	125,107 37	4,047,530
" 1906-1907, (July 1, '06 to March 31, '07). . . . .	302,677 37	80,613 26	3,001,010
" 1907-1908. . . . .	478,209 66	179,339 78	4,831,875
" 1908-1909. . . . .	497,686 03	209,636 55	5,896,737
" 1909-1910. . . . .	572,950 71	117,072 64	6,354,285
" 1910-1911. . . . .	576,838 02	138,247 81	5,600,050
	8,358,332 23	3,756,770 41	73,721,627

DREDGES.

*Elevator Dredge Laval* (No. 1).—This is the oldest dredge in the ship channel fleet. The hull is of wood, constructed in Ottawa in 1894. This dredge is provided with cast-steel buckets for work in rock and other hard material.

During the winter of 1909-10, repairs were made to the buckets, the machinery was given a general overhauling, the upper tumbler was replaced by a new one, and the boilers were given a thorough inspection and cleaning up.

The breaking up of the St. Lawrence river ice occurred much earlier than usual and as repairs to the dredges were completed, it enabled the fleet to start out much sooner.

The details of the operations for the fiscal year beginning April 1, 1910, were as follows:—

Dredge No. 1 left Sorel for Point-aux-Trembles (en-haut) on April 18, arriving at her destination the same day. The following morning she was laid out to clean



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up some lumps found by the testing scow in the Point-aux-Trembles channel, the material being black sand and soft clay. This work occupied only a few days.

As the department had agreed to dredge out the channel approach to the proposed floating dock at Maisonneuve, Montreal harbour, *No. 1* was brought up from Point-aux-Trembles and laid out to work on the approach on April 25. This channel was to be dredged to 30 feet at L.W. of 1897 and the material consisted of hard-pan and clay. The *Laval* continued to work here until June 14, when, (the water having subsided sufficiently to enable the dredge to work at Cap Levrard without losing time at high tide on account of her short bucket frame) she was taken down and laid out to finish dredging the new Cap Levrard channel to 30 feet at L.W. of 1897. The material was very hard and difficult to dredge, being hard-pan, clay and stones.

After the cut was completed the dredge did some cleaning up of lumps found by the testing scow. All was finished by September 12, and the channel was found to be clear of all obstructions by the testing scow. The Cap Levrard channel was then officially opened for navigation to a width of 450 feet and 30 feet in depth at low water of 1897. This is considered a much needed improvement by the shipping interests.

Dredge *No. 1* was then taken up to Batiscan curve on September 13 to clean up a few sand bars found by the testing scow. This was completed on October 4 and *No. 1* was moved up to Pointe Citrouille, Champlain channel, to clean up a few sand bars also found by the testing scow. As soon as this was done on October 14, the dredge was taken up to work in Montreal harbour where she left off in the early part of the season on the floating dock channel approach and continued there until taken to Sorel on November 25, to go into winter quarters.

In a total of 188 days during which *No. 1* was at work, her machinery was in actual operation 69 per cent of the full working time.

The total number of cubic yards removed amounted to 309,150 at a total cost of \$52,156.67 or 16<sup>87</sup>/<sub>100</sub> cents per cubic yard.

*Elevator dredge Laurier (No. 2).*—The hull of this dredge is also of wood, having been constructed at the government shipyard at Sorel in 1897. *No. 2* is equipped with a set of cast steel buckets especially designed for rock and other hard material.

During the winter of 1909-10, general repairs were made to buckets, chute, machinery and boilers. The 'A' frame and bow crane were strengthened. The bucket frame was also overhauled and stiffened up by extra bracing.

The details of the operations of this dredge for the fiscal year beginning April 1, 1910, were as follows:—

\*Everything being in order for work, dredge *No. 2* left Sorel for Varennes curve on April 11. This was an unusually early date, in fact the earliest on record.

*No. 2* was laid out on the curve to deepen the channel to 35 feet at low water of 1897 and also widen it, the material being clay.

The dredge continued to work at this place until the conditions at Cap à la Roche were such that it could work to advantage at that point. She was then taken down on April 23 and laid out on Cap à la Roche curve where she left off the previous season, the material to be dredged being solid shale rock.

*No. 2* continued in operation at Cap à la Roche until November 11, and left for Varennes on November 12, to begin working where she left off in the spring.

The dredge was taken into winter quarters at Sorel on November 25.

In a total of 195 days during which *No. 2* was at work, her machinery was in actual operation 68 per cent of the full working time.

The total number of cubic yards dredged amounted to 216,000 at a cost of \$48,267.66 or 22<sup>34</sup>/<sub>100</sub> cents per cubic yard.

*Elevator dredge Aberdeen (No. 3).*—The hull of this dredge is of steel, the complete vessel having been constructed at the Sorel shipyard in 1900. The buckets are of cast steel for work in hard material.



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During the winter of 1909-10, repairs were made to her woodwork and boilers, and her machinery was given a good overhauling and put in good shape for the next season's work. The lower tumbler was replaced by a new one.

The details of the operations of this dredge for the fiscal year beginning April 1, 1910, were as follows:—

Dredge *No. 3* also made a very early start, leaving Sorel for Point-aux-Trembles (en-haut) on April 11, where she was laid out to work on the south half of Point-aux-Trembles channel, deepening to 35 feet at low water of 1897.

This dredge worked there until May 23 and was then taken down to Cap Charles to begin work where she left off the previous season on the curve. The material to be removed consisted of very hard shale rock.

On May 26 a very serious accident occurred to the dredge, caused by the SS. *Royal Edward* which, while passing the dredge at too great a speed, forced the vessel forward making the bucket ladder frame strike the rock cut. The sudden jerk had the effect of breaking the upper tumbler shaft. This necessitated towing the dredge up to Sorel for repairs, which were completed on June 3, and the dredge returned to her work at Cap Charles curve. Owing to the exceedingly hard nature of the shale very little advance was made on the rock cut.

The rock-cutter which had been ready at the Sorel shipyard was brought down to Cap Charles curve and laid out where *No. 3* was working to break up the shale rock, which it did successfully.

This plant was only experimental, as the hull was one built for use as a stone-lifter, but the hoisting winch and ram were constructed at the works of Messers. Lobnitz & Company, Renfrew, Scotland.

The experiments proved satisfactory, as the dredge when laid out again was able to clean up the broken stone with much less strain on the machinery, thereby having fewer repairs, and less loss of time. With the aid of the rock-cutter the output of this dredge was increased by about 75 per cent.

While the rock-cutter was breaking up the shale, *No. 3* was on April 23 removed and laid out to work on Grande Pointe shoal a short distance below her cut, as requested by the shipping people. The material at this Pointe was clay and stones. *No. 3* worked at Grande Pointe shoal until August 8, when she was relaid at Cap Charles curve to clean up the area prepared by the rock-cutter. This was found to be well broken and was easily dredged. After finishing this area the dredge was again laid out on Grande Pointe shoal where she had left off.

On October 12, *No. 3* returned again to Cap Charles to clean up another area of broken shale rock, which was also easily removed.

The dredge worked at cleaning up the broken stone until November 6, and was then towed up to Point-aux-Trembles (en-haut) arriving there on November 9. She was laid out to work on the south half of the Point-aux-Trembles channel, deepening to 35 feet at L.W. of 1897. The material at Point-aux-Trembles consisted of sand and clay. *No. 3* continued there until November 21, when she was taken to Sorel to be put into winter quarters.

The working time of dredge *No. 3* was 184 days, the dredge being in actual operation 69 per cent of the full working time.

The total number of cubic yards removed amounted to 275,950, at a cost of \$50,230.58, or 18<sup>20</sup>/<sub>100</sub> cents per cubic yard.

*Elevator dredge Minto (No. 4).*—This dredge is of the same type and design as *No. 3*, and was constructed at the Sorel shipyard in 1900. *No. 4* is also provided with cast-steel buckets for dredging in rock and other hard material.

During the winter of 1909-10, the dredge was given a good overhauling, and the machinery put in good condition for the next season.

The upper and lower tumblers were renewed.



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The details of the operations during the season commencing April 1, 1910, were as follows:—

Dredge *No. 4* left Sorel for Varennes on April 11, and was laid out to work on the curve, widening, the material being blue clay.

She continued there until May 25, when the dredge was towed down to Cap à la Roche, and laid out where she left off the previous season, the material consisting of hard clay, embedded stones and shale rock.

Dredge *No. 4* worked successfully at Cap à la Roche until November 17, when a bucket link broke and the buckets went to the bottom. As the frame could not be lifted on account of a turn in the bucket chain, a diver was sent down to endeavour to straighten out matters, but as he found it would be a long job, it was decided as the season was far advanced, to lift up the anchors and tow the dredge to Sorel where the necessary repairs could be made more easily.

*No. 4* arrived at Sorel on November 21, and after the needful repairs were made, it was so late in the season, that the dredge was laid up for the winter.

The number of days during which this dredge was in operation was 88, and the percentage of time of actual work, 75.

The total number of cubic yards removed amounted to 399,750, at a cost of \$52,512.06, or 13<sup>13</sup>/<sub>100</sub> cents per cubic yard.

*Elevator dredge Lafontaine (No. 5).*—This dredge was also constructed at the Sorel shipyard, and was completed in 1901. The hull is of wood. She is fitted out with cast-steel buckets for rock.

During the winter of 1909-10, *No. 5* was given a thorough overhauling, and the necessary repairs were made to put her in good shape for the next season's work. The upper tumbler was renewed.

The details of the operations of this dredge for the fiscal year beginning April 1, 1910, were as follows:—

*No. 5* made an unusually early start, leaving Sorel for Varennes on April 11, and was laid out on the curve on her last season's cut to deepen the channel to 35 feet at L.W. of 1897, the material being hard clay. She continued working very satisfactorily until May 28, and was then taken down to work at Cap à la Roche, where the material to be dredged was shale rock.

On July 2, dredge *No. 5* unfortunately broke her bow wire, and the 'lewis,' on which the dredge is moored, came out, which necessitated a new hole being drilled in the rock for another 'lewis.' This not only caused a loss of time to *No. 5*, but also to dredge *No. 2*, from which dredge the 'lewis' had to be placed. The accident was caused by the Dominion SS. *Laurentic* passing the dredge at too great a speed.

Everything was in order again on July 9, but on the dredge commencing work the new 'lewis' pulled out, which caused more loss of time to both dredges. However, a better spot was found where the rock was more firm, and another was placed which stood the intense strain successfully all summer.

On the 16th it was found necessary to take the dredge up to Sorel for repairs to the upper tumbler, which were completed on the 19th. *No. 5* was then towed back to Cap à la Roche, where she was laid out again, and this dredge continued working until November 11, when she was taken up to Varennes and laid out on the curve, where she left off in the spring. The work at Varennes consisted in deepening the channel to 35 feet at L.W. of 1897 and also widening, the material being clay.

Dredge *No. 5* was taken into winter quarters at Sorel on November 25.

The working time of *No. 5* was 190 days. She was in actual operation 71 per cent of the full working time.

The total number of cubic yards removed amounted to 304,350, at a total cost of \$61,088.23, or 20<sup>07</sup>/<sub>100</sub> cents per cubic yard.



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*Elevator Dredge Baldwin* (No. 6).—This dredge was constructed at the Sorel shipyard in 1902, the hull being of wood. No. 6 is provided with large built up buckets for work in soft material, but with sufficient teeth to enable the dredge to work in hard clay, &c.

The dredge was given a thorough overhauling during the winter of 1909-10 to put her in good shape for next season's work. The lower tumbler was renewed.

Everything being ready for the season's work, dredge No. 6 left Sorel for Montreal on April 21, where she was laid out to work on the ship channel approach to the floating dock basin at Maisonneuve, Montreal harbour, the material being clay, sand, stones and some loose shale rock.

This was finished on June 23, and after two days cleaning up of lumps in Pte. aux Trembles channel No. 6 was then towed down to White buoy curve, Lake St. Peter, to clean up lumps found by the testing scow, which work was completed on June 29, the material being soft blue clay.

The dredge was then taken down to work on the Champlain channel, cleaning up sand bars, and continued there until September 26, when it was found necessary to take the dredge to Sorel to have a new upper tumbler shaft put on. While removing the broken upper tumbler shaft it was discovered that the tumbler was also cracked, and as there was no spare one at the shipyard a new one had to be cast, which caused delay to the dredge. While ramming in the shaft into the new tumbler the new tumbler split to pieces. It was then decided to patch up the old tumbler to finish the season, as waiting for another to be cast would delay the dredge too long. The old tumbler was, therefore, repaired, and the dredge ready for work again on November 19. No. 6 was laid out on Ste. Anne Traverse, just below Sorel, where the material was soft blue clay, to enable her to finish out the season. The work consisted of deepening the channel to 35 feet at L.W. of 1897, and continued working there successfully until brought to Sorel to go into winter quarters on November 26, 1910.

In a total of 168 days during which this dredge was at work her machinery was in actual operation 75 per cent of the full working time.

The total number of cubic yards removed amounted to 375,925, at a cost of \$58,221.28, or 15<sup>48</sup>/<sub>100</sub> cents per cubic yard.

*Hydraulic Dredge J. Israel Tarte* (No. 7).—The hull of this dredge is of steel, of the same type and general design as the steel hulls of the elevator dredges.

She was constructed in 1902 by the Polson Iron Works Company of Toronto, Canada.

During the winter of 1909-10 the dredge was given a general overhauling and her machinery put in good order for the next season.

Four new lengths of pontoons, 100 feet long each, were completed during the winter to be added to the present discharge pipe to allow the dredged material to be deposited further away.

The inlet elbow of the suction pipe was altered to allow dredging to a greater depth in connection with the 35-foot project.

One new lifeboat was installed on board.

The dredge left Sorel to commence operations for the season on April 15, the earliest start on record, and was laid out to work just below White buoy curve to finish a short stretch of widening and deepening which had not been completed the previous season to 30 feet at L.W. of 1897, the material consisting of blue clay.

This work was finished on May 23, and the dredge was then laid out to begin dredging to 35 feet at L.W. of 1897 at the upper end of White buoy curve.

A great amount of time was lost during the season owing to difficulty in obtaining steam pressure. This was partly due to the bad condition of the boilers, but principally to the inferior quality of coal supplied.



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There was also loss of time due to passing steamers as the dredge was working right across the channel which necessitated taking great precaution to avoid blocking the channel, so that No. 7 had to move over to the bank in good time to give a free passage to the vessels.

On July 15, the boilers were found to be in such bad condition that it was decided to bring the dredge to Sorel for repairs which were rushed day and night. These repairs were completed on July 25, and the dredge returned to Lake St. Peter and resumed her work.

An accident occurred on October 8, when the cutterhead shaft broke. This delayed the dredge several days.

No. 7 continued working until November 19, and was then towed to Sorel to go into winter quarters.

In a total of 177 days during which this dredge was at work, her machinery was in operation 45 per cent of the full working time.

The total number of cubic yards removed amounted to 2,352,200 at a total cost of \$119,214.67 or 5<sup>06</sup>/<sub>100</sub> cents per cubic yard.

*Diper dredge No. 10—Steel hull.*—This dredge was constructed at the Sorel shipyard and completed in 1910. She was designed by Mr. John Kennedy, Consulting Engineer for the Montreal Harbour Commissioners, and is considered to be the most powerful dredge of this type afloat.

The following are her dimensions:—

Length moulded, 132 feet 6 inches

Breadth moulded 42 feet 0 inches.

Depth at bow, 11 feet 6 inches.

Depth at stern, 9 feet 9 inches.

Length of boom, centre to centre, 55 feet, 3 inches.

Length of spuds, 74 feet 0 inches.

Main engines, 2 compound, 16 & 30 x 22 inches.

Swinging engines, simples, 14 x 14 inches.

Capstan engines, simples, 10 x 14 inches.

The capacity of her bucket for rock is 9 cubic yards, and for soft material, 11 cubic yards.

The pull on the bucket hoisting rope = 180,000 lbs.

The dredge is able to work to 50 feet. She is equipped with electric light.

The steam for the machinery is provided by one marine boiler 12 feet in diameter x 10 feet in length, with two Morrison furnaces, the boiler having a working pressure of 160 lbs. per square inch.

The dredge left Sorel on Monday, August 1, for Montreal, being towed up by Canadian Government steamer *Lady Grey*, and tugs *Contrecoeur* and *Jessie Hume*. She arrived as far as Cap St. Michel that evening at 7 p.m., and was anchored for the night.

Next morning at 8.30 a.m. No. 10 arrived at Molson's creek, and was laid out to work on the channel approach to the floating dock basin, Montreal harbour.

The dredge only commenced operations on August 10, and owing to a series of break-downs which was to be expected with a new and experimental machine, did not make a good showing for the season of 1910. It is anticipated however, that during 1911, she will prove her worth, after all the defects have been discovered and remedied.

During the season of 1910, out of a possible number of 92 days, the dredge was only in actual operation 57 per cent of that time.

The total quantity of cubic yards removed, the material being hard-pan, amounted to 56,725, at a cost of \$24,880.92 or 43<sup>86</sup>/<sub>100</sub> cents per cubic yard.

The total number of cubic yards removed by the dredging fleet in the ship channel between Montreal and Quebec, during the fiscal year ending March 31, 1911, amounted to 4,290,050 at a total cost of \$466,572.01 or 10<sup>87</sup>/<sub>100</sub> cents per cubic yard.



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*Hopper-Hydraulic dredge Beaujeu* (No. 8)—*Steel hull, twin-screw*.—This dredge was built at the Sorel shipyard in 1906.

During the winter of 1909-10 the dredge was given a thorough overhauling and put in good order for the next season's operations. Repairs were made to the gate valve of the suction pipe.

The details of the operations of this dredge for the fiscal year beginning April 1, 1910, were as follows:—

No. 8 left Sorel on April 15, the earliest start on record for this dredge. She was laid out to work at St. Thomas Flats below Quebec on April 16. Her work consisted of dredging a channel to a width of 1,000 feet, and to a depth of 30 feet at extreme low tide, through St. Thomas bank, the material being clay and stones.

The north half, 500 feet wide, was completed during the season, and a good start made on the south half of the channel.

In order to give a 30 foot channel as quickly as possible it was decided to cut a channel 1,000 feet wide through St. Thomas bank, and mark a channel out more to the south where there is sufficient depth of water, by means of gas buoys, the straight channel to be completed later on. It is expected that the channel through St. Thomas bank will be completed and opened for navigation by the end of the season of 1911.

The dredge was started at breasting across the channel to give a good bottom, and after a little trouble at the commencement, she was operated very successfully by this method, and a great deal of work was accomplished during the season.

The *Beaujeu* continued working at St. Thomas bank until November 18, when she left for Sorel to go into winter quarters, arriving at the latter place on the 19th.

The working time of No. 8 was from daylight to dark and the dredge was kept in operation 68 per cent of the full working time.

During the season the *Beaujeu* worked 186 days at St. Thomas channel and made 371 loads which amounted to 700,400 cubic yards at a total cost of \$59,822.66 or 8<sup>54</sup>/<sub>100</sub> cents per cubic yard.

*Suction-Hopper dredge Galveston* (No. 9)—*Steel hull, twin-screw*.—This dredge was constructed in Germany in 1904.

During the winter of 1909-10 the *Galveston* was given a thorough overhauling and her machinery was put in good order for the next season's work.

The details of the operations of this dredge for the fiscal year beginning April 1, 1910, were as follows:—

No. 9 left Sorel for St. Michel-de-Bellechase, below Quebec, on April 18, 1910, and was beached at the latter place to open the suction-pipe opening on the starboard side which had been made watertight in the autumn to enable work being carried on during the winter in connection with her turbines, &c.

The *Galveston* was ready for work on April 25 and proceeded immediately to Beaujeu bank, below Quebec to commence operations for the season. Her work consisted of widening the channel and deepening to 35 feet at extreme low tide, to allow for filling in.

On May 18, No. 9 was taken to St. Michel for repairs to the slide of the discharge pipe and had to be beached. These repairs were completed on the 21st, and the dredge returned to Beaujeu channel. She was beached again on September 17, for repairs to the turbines and boilers and returned to work on the 24th.

After a successful season the *Galveston* completed the channel at Beaujeu bank on November 13. She was then beached at St. Michel, to block up the discharge pipe opening and left for Sorel to go into winter quarters on November 15, arriving there on the 16th.

During the season, this dredge worked 180 days. Her hours of operation were from daylight to dark. She was in actual operation 60 per cent of the full working time, and made 408 loads, amounting to 609,600 cubic yards.



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The material consisted of sand, some blue clay and stones. The total cost amounted to \$50,383.35 or  $8\frac{2}{100}$  cents per cubic yard.

The total number of cubic yards removed by the *Beaujeu* (No. 8) and the *Galveston* (No. 9) below Quebec during the fiscal year ending March 31, 1911, amounted to 1,310,000 at a total cost of \$110,226.01 or  $8\frac{4}{100}$  cents per cubic yard.

The total number of cubic yards removed by the whole of the dredging fleet during the season, amounted to 5,600,050, at a total cost of \$576,838.02 or  $10\frac{2}{100}$  cents per cubic yard.

PROGRESS of Dredging Operations at date of writing, the close of the season, 1910.

Locality.	Distance English miles.	Total length requiring dredging.	Length dredged in 1910.	Total length of 30 foot channel dredged.	Length yet to be dredged.
		Miles.	Miles.	Miles.	Miles.
Division 1 :— Montreal to Sorel .....	45	22·90	.....	22·90	All completed.
Division 2 :— Sorel to Batiscan.....	36	12·45	.....	12·45	All completed.
Division 3 :— Lake St. Peter .....	20	18·00	0·20	*0·20 †17·80	All completed. 0·20 to be widened.
Division 4 :— Batiscan to Quebec.....	59	10·00	0·55	6·70	3·30
Division 5 :— Quebec to The Traverse.....	60	6·65	1·00	4·00	2·65
Total .....	220	70·00	1·75	64·05	5·95

\* Not widened.    † Widened.



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PROGRESS of Dredging Operations at date of writing, the close of the season, 1910.

LOCALITY.	LENGTH OF DREDGING		Cubic yards yet required to be done.
	Required.	Done.	
	Miles.	Miles.	
Division 1:—			
Longueuil Shoal.. . . . .		1·10	
Longue Pte. to Pte. aux Trembles (en-haut).. . . . .		5·05	
Ile Ste. Thérèse.. . . . .		0·40	
Varennes to Cap St. Michel.. . . . .		3·00	
Cap. St. Michel to Vercheres.. . . . .		4·50	
Vercheres Traverse. . . . .		1·10	
Vercheres to Contrecoeur.. . . . .		1·17	
Contrecoeur Channel.. . . . .		6·05	
Total . . . . .		22·90	
Division 2:—			
Sorel to Ile de Grace.. . . . .		4·40	
Stone Island. . . . .		1·10	
Ile aux Raisins.. . . . .		0·25	
Lake St. Peter (see Div. 3).. . . . .		0·50	
Port St. Francis.. . . . .		0·50	
Three Rivers.. . . . .		1·55	
Cap. Madeleine to Becancour.. . . . .		2·25	
Becancour to Champlain.. . . . .		1·30	
Champlain to Pte. Citrouille.. . . . .		0·60	
Batture Perron . . . . .			
Total.. . . . .		12·45	
Division 3:—			
Lake St. Peter.. . . . .		* 0·20	200,000
		† 17·80	
Total.. . . . .		18·00	200,000
Division 4:—			
Batiscan to Cap. Levrard.. . . . .		3·00	
Cap à la Roche channel.. . . . .	0·70	1·30	600,000
Pouillier Royer.. . . . .	0·30	0·90	275,000
Cap Charles.. . . . .	0·40	0·50	120,000
Grondines . . . . .	0·70	0·10	240,000
Lotbiniere.. . . . .		0·40	
Cap Sante.. . . . .		0·20	
Ste. Croix.. . . . .	0·60	0·30	150,000
St. Augustin.. . . . .	0·60		300,000
Total.. . . . .	3·30	6·70	1,685,000
Division 5:—			
Quebec to The Traverse.. . . . .	2·65	4·00	1,000,000
Total.. . . . .	2·65	4·00	1,000,000
Totals.. . . . .	5·95	64·05	2,885,000
Cubic yards yet to be done.. . . . .			2,885,000
Cubic yards done.. . . . .			73,721,627
Grand total.. . . . .			76,606,627



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RIVER ST. LAWRENCE SHIP CHANNEL.

ABSTRACT of Work of Dredging Fleet during Fiscal Year ended March 31, 1911.

Dredge.	Locality of Dredging.	Time of service.	Nominal work hours, 24 per day.	Hours actual dredging.	Number of scows filled.	Number of cubic yards dredged (seaw measurement.)	Depth of dredging at low water.	Width in feet.	Character of Soil.	Remarks.
		Days.	Hours.				Ft. In.	Feet.		
<i>Laral</i> (No. 1).....	Pointe - aux - Trembles (en haut). ....	6	132	92 <sup>3</sup> / <sub>4</sub>	60	11,800	30 0	450	Clay ....	Capt. R. Matte.
	Floating dock approach	79	1,752	1,315 <sup>1</sup> / <sub>4</sub>	870	169,700	30 0	500 to 750	Hard pan and stones.	
	Cap Lévrard channel.	80	1,752	1,140	556	83,400	30 0	450	Clay and stones.	
	Batiscau channel.....	14	312	237	178	31,000	30 0	450	Sand and stones.	
	Champlain channel. ....	9	204	83 <sup>1</sup> / <sub>4</sub>	53	13,250	30 0	450	Sand.	
		188	4,152	2,868 <sup>3</sup> / <sub>4</sub>	1,717	309,150				
<i>Laurier</i> (No. 2).	Varennes curve. ....	47	1,044	785 <sup>3</sup> / <sub>4</sub>	367	73,400	35 0	550 to 600	Clay ....	Capt. C. Gendron.
	Cap à la Roche curve.	148	3,252	2,137	713	142,600	30 0	450 to 550	Shale rock.	
		195	4,296	2,922 <sup>3</sup> / <sub>4</sub>	1,080	216,000		600		
<i>Lady Aberdeen</i> (No. 3)...	Pointe - aux - Trembles (en haut.)... ..	46	1,008	756 <sup>1</sup> / <sub>2</sub>	487	97,400	35 0	450	Clay, sand and stones....	Capt. P. Cardin.
	Cap Charles curve....	78	1,704	1,061	408	79,350	30 0	600	Shale rock and stones.	
	Grand Point shoal ....	60	1,324	973 <sup>3</sup> / <sub>4</sub>	496	99,200	30 0	450 to 600	Clay, sand and stones.	
		184	4,036	2,791 <sup>1</sup> / <sub>4</sub>	1,391	275,950				
<i>Lady Minto</i> (No. 4).....	Varennes curve.	40	888	709 <sup>1</sup> / <sub>4</sub>	712	142,400	35 0	550 to 600	Clay and stones....	Capt. B. Lade-banhes.
	Cap à la Roche curve.	148	3,252	2,391 <sup>1</sup> / <sub>4</sub>	1,286 <sup>3</sup> / <sub>4</sub>	257,350	30 0	450 to 500	Hard clay, shale rock and stones.	
		188	4,140	3,101 <sup>1</sup> / <sub>4</sub>	1,998 <sup>3</sup> / <sub>4</sub>	399,750				



RIVER ST. LAWRENCE SHIP CHANNEL—Continued.

ABSTRACT of Work of Dredging Fleet during Fiscal Year ended March 31, 1911.

Dredge.	Locality of Dredging.	Time of service.	Nominal work hours, 24 per day.	Hours actual dredg- ing.	Number of scows filled.	Number of cubic yards dredged (sow measure- ment.)	Depth of dredg- ing at low water.		Width in feet.	Character of Soil.	Remarks.
		Days.	Hours.				Ft.	In.			
<i>Lafontaine</i> (No. 5).....	Varennes curve..... Cap à la Roche curve.	53	1,176	960	517	155,700	35	0	550 to 600	Hard clay ..... Shale rock.	Capt. A. Marcotte.
		137	3,000	1,991½	644	148,650	30	0	450 to 550		
		190	4,176	2,951½	1,161	304,350					
<i>Baldwin</i> (No. 6).....	Floating dock approach Pointe - aux - Trembles (en haut)..... White Buoy curve, L. S.P..... Champlain Channel. . . St. Anne Traverse .....	52	1,140	889	541	105,875	30	0	500 to 750	Clay sand and stones.... Black sand (cleaning up). Clay. Sand. Clay.	Capt. L. Dauphinais.
		2	48	31	3	600	30	0	450		
		6	132	65½	64	15,950	30	0	800		
		74	1,622	1,219½	555	141,800	30	0	450		
		34	744	564½	376	111,700	35	0	450		
		168	3,686	2,770	1,539	375,925					
<i>J. Israel Tarte</i> (No. 7)...	No. 3 to White Buoy, L.S.P. .... White Buoy to No. 2, L.S.P. ....	31	672	315	.....	378,617	30	0	450	Clay..... Very hard clay.	Capt. J. S. Michaud.
		146	3,222	1,390½	.....	1,973,583	35	0	450		
		177	3,894	1,705½	.....	2,352,200					



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<i>Beaujeu</i> (No. 8).....	St. Thomas channel...	186	2,437½	1,666½	371	700,400	30	0	1,000	Clay and stones.....	Capt. A. Bourget.
<i>Gidveston</i> (No. 9).....	Beaujeu channel.. . .	180	2,292½	1,383½	408	609,600	30	0	1,200	Hard sand, clay, stones and gravel.	Capt. L. Lemieux.
<i>Dipper Dredge</i> (No. 10) ..	Floating dock approach	96	.....	.....	257	56,725	30	0	500 to 750	Hardpan and stones .....	Capt. J. A. Upper.
		.....	.....	.....	.....	5,600,050					







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Stone lifter No. 2 " No. 3 Rock-cutter..... Floating shop.....	Divided (equally between elevator dredges)	222 82	1,311 46	379 63	753 25	902 49	.....	206 47	3,776 12	.....	.....	.....
		.....	1,212 25	382 10	154 14	456 17	.....	127 54	2,332 20	.....	.....	.....
		1,570 35	2,313 40	974 53	910 56	1,591 14	.....	427 69	7,822 67	.....	.....	.....
		.....	1,101 90	407 39	960 07	360 27	.....	163 68	2,993 31	.....	.....	.....
Str. <i>Lady Gray</i> (ice break- ing and emergency tug)...		8,757 13	10,529 77	4,535 09	4,047 99	4,797 02	.....	1,889 17	34,556 17	.....	.....	34,556 17
Construction for dredging fleet—												
Tug <i>Carmelia</i> new boiler. Construction of 400 feet long pontoons.....		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Constr. 1,300 c. y. dump scow, No. 33.....		.....	.....	.....	.....	.....	4,954 85	.....	.....	.....	.....	.....
Constr. 2,200 c. y. dump scow, No. 34.....		.....	.....	.....	.....	.....	4,296 36	.....	.....	.....	.....	.....
Constr. steel elev. dredge No. 37.....		.....	.....	.....	.....	.....	11,644 36	.....	.....	.....	.....	.....
Constr. steel tug, No. 38. " testing scow No. 32 No. 39.....		.....	.....	.....	.....	.....	29,869 41	.....	.....	.....	.....	.....
		.....	.....	.....	.....	.....	3,665,97	.....	.....	.....	.....	.....
		.....	.....	.....	.....	.....	920 39	.....	.....	.....	.....	.....
		.....	.....	.....	.....	.....	2,918 31	.....	.....	.....	.....	58,269 68
Improvements to Sorel shipyard—												
Boiler shop, new tools, machinery.....		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Blacksmith shop, new tools, machinery.....		.....	.....	.....	.....	.....	8,627 41	.....	.....	.....	.....	.....
Machine shop, new tools, machinery.....		.....	.....	.....	.....	.....	2,725 61	.....	.....	.....	.....	.....
Pipe shop, new tools, machinery.....		.....	.....	.....	.....	.....	9,820 25	.....	.....	.....	.....	.....
Carpenter's shop, new tools, machinery.....		.....	.....	.....	.....	.....	409 68	.....	.....	.....	.....	.....
Saw mill shop, new tools, machinery.....		.....	.....	.....	.....	.....	107 10	.....	.....	.....	.....	.....
Telephone installation in shops.....		.....	.....	.....	.....	.....	5,593 95	.....	.....	.....	.....	.....
Ship yard railway.....		.....	.....	.....	.....	.....	642 40	.....	.....	.....	.....	.....
Slip-way No. 2.....		.....	.....	.....	.....	.....	140 39	.....	.....	.....	.....	.....
New sheer legs.....		.....	.....	.....	.....	.....	8,320 87	.....	.....	.....	.....	.....
Water-works.....		.....	.....	.....	.....	.....	7,657 40	.....	.....	.....	.....	.....
Shipyards general.....		.....	.....	.....	.....	.....	177 43	.....	.....	.....	.....	.....
Coal tar basin.....		.....	.....	.....	.....	.....	794 69	.....	.....	.....	.....	.....
		.....	.....	.....	.....	.....	4 49	.....	.....	.....	.....	.....



RIVER ST. LAWRENCE SHIP CHANNEL—Continued.  
CLASSIFICATION of Disbursements for Fiscal Year ended March 31, 1911—Concluded.

Vessels.	Fuel.		Wages.		Board.		Stores and materials.		Repairs and labour.		Expenditure: new plant, rebuilding shipyards, &c.		Proportion of general and office expenses, &c.		Expenditure for each vessel.		Floating shop, rock-crusher and stone-lifter service, elevator dredges.		Tug service.		Inspection towing, sweeping, &c.		Total cost of operations of each dredge and plant during Fiscal Year.		Total expenditure on different appropriations.	
	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.
Improvements to Sorel shipyard— <i>Con.</i>											155	78														
Building No. 8, alteration.....											344	51													45,421	96
Building No. 14, alteration.....	159,528	83			60,886	81	64,879	56	133,862	20	103,691	64	33,425	16	611,394	19	16,924	30	115,221	94	42,320	30	576,838	02	715,085	83

DETAILS of Dredging, Locality and Cost per Cubic Yard.

Dredges.	Total cost of operations of each dredge and plant during Fiscal Year.		Number of days in operation each dredge.		Cost per day, operations of dredges and plant.		Days working, each locality.		Cost of work, each locality.		Total cost of operations of each dredge.		Number of cubic yards dredged in each locality.		Total cubic yards for each dredge.		Cost per cubic yard, each locality.		Average cost per cubic yard for each dredge.		Kind of material dredged.	Locality of dredging.
	\$	cts.			\$	cts.			\$	cts.	\$	cts.					Cts.		Cts.			
Laval (No. 1).....	52,156	67	188		277	42	6		1,664	57			11,800					14 <sup>10</sup> <sub>100</sub>			Clay.....	Pte. aux Trembles (E.H.)
							79		21,916	91			169,700					12 <sup>91</sup> <sub>100</sub>			Hard pan and stones...	Floating dock approach.
							80		22,194	35			83,400					26 <sup>91</sup> <sub>100</sub>			Clay and stones.....	Cape Levrard channel.
							14		3,884	00			31,000					12 <sup>52</sup> <sub>100</sub>			Sand and stones.....	Batiscan channel.
							9		2,496	84			13,250					18 <sup>84</sup> <sub>100</sub>			Sand.....	Champlain channel.
											52,156	67	309,150					16 <sup>87</sup> <sub>100</sub>				
Laurier (No. 2).....	48,267	66	195		247	52	47		11,633	67			73,400					15 <sup>84</sup> <sub>100</sub>			Clay....	Varennes curve.
							148		36,633	99			142,600					25 <sup>84</sup> <sub>100</sub>			Shale rock.....	Cap à la Roche curve.
											48,267	66	216,000					22 <sup>34</sup> <sub>100</sub>				



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<i>Lady Aberdeen</i> (No. 3).	50,230 58	184 272 99	46 78 60	12,557 66 21,293 39 16,379 53	..... ..... 50,230 58	97,400 79,350 99,200	..... ..... 275,950	12 <sup>28</sup> <sub>100</sub> 26 <sup>48</sup> <sub>100</sub> 16 <sup>61</sup> <sub>100</sub>	..... ..... 18 <sup>20</sup> <sub>100</sub>	Clay, sand and stones.... Shale rock and stones.... Clay, sand and stones....	Pte. aux Tremble (E.H.). Cap Charles curve. Grande Pointe shoal.
<i>Lady Minto</i> (No. 4)....	52,512 06	188 279 32	40 148	11,172 80 41,339 26	..... .....	142,400 257,350	..... .....	7 <sup>84</sup> <sub>100</sub> 16 <sup>96</sup> <sub>100</sub>	..... .....	Clay and stones..... Hard clay, shale rock and stones.....	Varenes curve. Cap à la Roche curve.
<i>Lafontaine</i> (No. 5).....	61,088 23	190 321 52	53 137	17,040 44 44,047 79	..... 61,088 23	155,700 148,650	..... 304,350	10 <sup>94</sup> <sub>100</sub> 29 <sup>68</sup> <sub>100</sub>	..... 20 <sup>70</sup> <sub>100</sub>	Hard clay..... Shale rock.....	Varenes curve. Cap à la Roche curve.
<i>Baldwin</i> (No. 6). ....	58,221 28	168 346 55	52 2	18,020 87 693 11	..... .....	105,875 600	..... .....	17 <sup>135</sup> <sub>100</sub> \$1.15	.....	Clay, sand and stones....	Floating dock approach.
<i>J. Israel Tarte</i> (No. 7).	119,214 61	177 673 53	31	20,879 38	.....	378,617	.....	5 <sup>51</sup> <sub>100</sub>	.....	Clay.....	Curve No. 3 to White Buoy C.
<i>Beaujeu</i> (No. 8). ....	59,882 66	186 321 95	146	98,335 23	..... 119,214 61	1,973,583	..... 2,352,200	4 <sup>98</sup> <sub>100</sub> .....	5 <sup>66</sup> <sub>100</sub>	Very hard clay.....	White Buoy to Curve No. 2 (Lake St. Peter).
<i>Galveston</i> (No. 9).....	50,383 35	180 279 90	186	59,882 66	..... 59,882 66	700,400	..... 700,400	8 <sup>64</sup> <sub>100</sub> .....	..... 8 <sup>64</sup> <sub>100</sub>	Clay and stones.....	St. Thomas channel.
<i>Dipper dredge</i> (No. 10)	24,880 92	96 259 18	96	24,880 92	..... 24,880 92	56,725	..... 56,725	43 <sup>80</sup> <sub>100</sub> .....	43 <sup>80</sup> <sub>100</sub>	Sand, clay, stones and gravel.....	Beaujeu channel.
	576,838 02	1,752 .....	1,752	576,838 02	576,838 02	5,600,050	5,600,050	.....	.....	Hardpan and stones.....	Floating dock approach, (Montreal Harbour).



## DREDGING PLANT.

The following is a description of the dredging plant at the end of the season of 1910, owned and operated by the Department of Marine and Fisheries in connection with the River St. Lawrence ship channel:—

## DREDGES.

*The Elevator Dredge 'Laval' (No. 1), wooden hull—*

Length over all, 150 feet.  
Breadth of beam, 30 feet.  
Depth of hold, 14 feet.  
Average draught, 11 feet.  
Greatest working depth, 42 feet.  
Hull built in Ottawa in 1894.  
Steel buckets.  
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The Elevator Dredge 'Laurier' (No. 2), wooden hull—*

Length over all, 163 feet.  
Breadth of beam, 32 feet.  
Depth of hold, 14 feet.  
Average draught, 10 feet.  
Greatest working depth, 45 feet.  
Built at Sorel shipyard in 1897.  
Steel buckets.  
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The Elevator Dredge 'Lady Aberdeen' (No. 3), steel hull—*

Length over all, 148 feet.  
Breadth of beam, 32 feet.  
Depth of hold, 13 feet.  
Average draught, 8.5 feet.  
Greatest working depth, 42.5 feet.  
Built at Sorel shipyard in 1900.  
Steel buckets.  
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The Elevator Dredge 'Lady Minto' (No. 4) steel hull—*

Length over all, 148 feet.  
Breadth of beam, 32 feet.  
Depth of hold, 13 feet.  
Average draught, 8.5 feet.  
Greatest working depth, 42.5 feet.  
Built at Sorel shipyard in 1900.  
Steel buckets.  
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.



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*The Elevator Dredge 'Lafontaine' (No. 5) wooden hull—*

Length over all, 168 feet.  
Breadth of beam, 32 feet.  
Depth of hold, 14 feet.  
Average draught, 9 feet.  
Greatest working depth, 45 feet.  
Built at Sorel shipyard in 1901.  
Steel buckets.  
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The Elevator Dredge 'Baldwin' (No. 6), wooden hull—*

Length over all, 165 feet.  
Breadth of beam, 34 feet.  
Depth of hold, 14 feet.  
Average draught, 8 feet.  
Greatest working depth, 42.5 feet.  
Built at Sorel shipyard in 1902.  
One cubic yard buckets strengthened for fairly hard material.  
Working capacity per day in medium material, 2,500 to 3,500 cubic yards.

*The Hydraulic Dredge 'J. Israel Tarte' (No. 7), steel hull—*

Length over all, 160 feet.  
Breadth of beam, 42 feet.  
Depth of hold, 12.5 feet.  
Average draught, 6 feet.  
Length of suction pipe, 80 feet.  
Greatest working depth, 47 feet.  
Built at the Polson Iron Works, Toronto, in 1902.  
Working capacity per day in soft material, 12,000 to 20,000 cubic yards.

*Discharge Pipe and pontoons of Dredge 'J. I. Tarte' (No. 7)—*

Twenty-three lengths of pipe, 36 inches diameter by 100 feet long.  
One length of pipe 36 inches diameter by 35 feet long.  
Twenty-seven pairs of pontoons for floating pipes, 42 inches diameter by 90 feet long.

*Winch Scow (No. 3) for Dredge 'J. Israel Tarte' (wooden hull)—*

Length over all, 60 feet.  
Breadth of beam, 18 feet.  
Depth of hold, 6 feet.  
Built at Sorel shipyard in 1902.

*Winch scow (wooden hull) for Dredge 'J. Israel Tarte' (with steam boiler and steam winch)—*

Length over all, 63 feet.  
Breadth of beam, 27 feet.  
Depth of hold, 8 feet.  
Built at Sorel shipyard in 1909.

*The Suction Hopper Dredge 'Galveston' (No. 9), steel hull, twin-screw—*

Length over all, 233 feet.  
Breadth of beam, 39 feet.  
Depth of hold, 15 feet 5 inches.



2 GEORGE V., A. 1912

Draft when loaded with 1,800 tons, 14 feet 9 inches aft, 13 feet 1 inch forward.

Greatest working depth, 55 feet.

Built in 1904.

Two suction pumps, Dutch type, 8 feet 6 inches outside diameter.

Working capacity, 1,350 cubic yards in 45 minutes.

Hopper capacity, 1,400 cubic yards.

*Sea-going, Suction Hopper Dredge 'Beaujeu' (No. 8), steel hull twin-screw—*

Length between perpendiculars, 264 feet.

Breadth of beam, 45 feet.

Depth of hull, 20 feet.

Capacity of hoppers, 2,000 cubic yards in 45 minutes.

Greatest working depth, 65 feet.

Draught when loaded, 15 feet.

Ordinary speed, 9 statute miles.

Built in Sorel shipyard in 1907.

*Dipper Dredge 'No. 10,' steel hull—*

Length moulded, 132.5 feet.

Breadth moulded, 42 feet.

Depth at bow, 11.5 feet.

Depth at stern, 9.7 feet.

Length of spuds, 74 feet.

Bucket capacity, one 11 yard for soft material, one 9 yard for hard material.

Capable of dredging to 50 feet.

Built at Sorel shipyard in 1910.

*The 'Rockcutter,' steel hull—*

Length over all, 100 feet.

Breadth of beam, 32 feet.

Depth of hold, 12 feet.

Weight of ram, 20 tons.

Hoisting winch and ram built by Lobnitz & Co., Renfrew, Scotland.

Hull built at Sorel shipyard in 1910.

#### TUGS.

*The Ice-breaking and Sweeping Tug 'Lady Grey' (steel hull, twin-screw)—*

Length between perpendiculars, 172 feet.

Length over all, 183 feet 6 inches.

Breadth moulded, 32 feet.

Breadth extreme, 32 feet 3 inches.

Depth moulded, 18 feet.

Draught mean to bottom of flat plate keel (normal), 12 feet

Draught when ice-breaking, about 13 feet.

Displacement in tons at 12-foot draught, 1,070.

Mean speed at 12-foot draught on 6 runs over measured mile base, 14 knots.

Built by Vickers Sons & Maxim, Ltd., Barrow-in-Furness, in 1906.

*The Tug 'Frontenac' (composite hull)—*

Length over all, 113 feet.

Breadth of beam, 23 feet.

Depth of hold, 10 feet.

Average draught, 9 feet.

Built at Sorel shipyard in 1902.



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*The Tug 'De Levis' (wooden hull)—*

Length over all, 104 feet.  
Breadth of beam, 20 feet.  
Depth of hold, 10 feet.  
Average draught, 8 feet.  
Built at Sorel shipyard in 1902.

*The Tug 'James Howden' (wooden hull)—*

Length over all, 100 feet.  
Breadth of beam, 21 feet.  
Depth of hold, 10 feet.  
Average draft, 7.5 feet.  
Built at Sorel shipyard in 1903.

*The Tug 'St. Jean Iberville' (steel hull)—*

Length over all, 90 feet.  
Breadth of beam, 18 feet.  
Depth of hold, 12 feet.  
Average draught, 10 feet.  
Built at Sorel shipyard in 1897.

*The Tug 'Lac St. Pierre' (wooden hull).—*

Length over all, 100 feet.  
Breadth of beam, 21 feet.  
Depth of hold, 10 feet.  
Average draft, 7.6 feet.  
Built at Sorel shipyard in 1901.

*The Tug 'Portneuf' (wooden hull).—*

Length over all, 85 feet.  
Breadth of beam, 17 feet 3 inches.  
Depth of hold, 9 feet 9 inches.  
Average draught, 8 feet.  
Built in 1905.  
Built at Sorel shipyard in 1893.

*The Tug 'Cartier' (wooden hull).—*

Length over all, 84 feet.  
Breadth of beam, 18 feet.  
Depth of hold, 9.5 feet.  
Average draught, 8 feet.

*The Tug 'Emilia' (wooden hull).—*

Length over all, 84 feet.  
Breadth of beam, 17 feet.  
Depth of hold, 9 feet.  
Average draught, 8 feet.  
Built at Sorel shipyard in 1898.

*The Tug 'Champlain' (wooden hull).—*

Length over all, 84 feet.  
Breadth of beam, 17 feet.  
Depth of hold, 9 feet.  
Average draught, 8 feet.  
Built at Sorel shipyard in 1901.



*The Tug 'Jessie Hume' (wooden hull).—*

Length over all, 72 feet.  
Breadth of beam, 17.2 feet.  
Depth of hold, 10 feet.  
Average draught, 8.5 feet.  
Built in Buffalo in 1878.

*The Tug 'Montcalm' (wooden hull).—*

Length over all, 80 feet.  
Breadth of beam, 23 feet.  
Depth of hold, 8 feet.  
Average draught, 7 feet.  
Built at Sorel shipyard in 1903.

*The Tug 'Carmelia' (wooden hull).—*

Length over all, 84 feet.  
Breadth of beam, 17 feet.  
Depth of hold, 9 feet.  
Average draught, 8 feet.  
Purchased in 1903.

*The Tug 'Contrecoeur' (wooden hull).—*

Length over all, 90 feet.  
Breadth of beam, 22.7 feet.  
Depth of hold, 9 feet.  
Average draught, 7 feet.  
Built at Sorel shipyard.

## COAL BARGES.

*Coal Barge 'No. 1' (wooden hull).—*

Length over all, 120 feet.  
Breadth of beam, 24 feet.  
Depth of hold, 10 feet.  
Built at Sorel shipyard in 1898.

*Coal Barge 'No. 2' (wooden hull).—*

Length over all, 125 feet.  
Breadth of beam, 25 feet.  
Depth of hold, 11 feet.  
Built at Sorel shipyard in 1900.

*Coal Barge 'No. 3' (wooden hull).—*

Length over all, 98 feet.  
Breadth of beam, 28 feet.  
Depth of hold, 12 feet.  
Built at Sorel shipyard in 1902.

*Coal Barge 'No. 4' (wooden hull).—*

Length over all, 98 feet.  
Breadth of beam, 28 feet.  
Depth of hold, 12 feet.  
Built at Sorel shipyard in 1903.



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*Stone-lifter 'No. 2' (wooden hull).—*

Length over all, 80 feet.  
Breadth of beam, 25 feet.  
Depth of hold, 9.8 feet.  
Re-built at Sorel shipyard in 1897.

*Stone-lifter 'No. 3' (wooden hull).—*

Length over all, 108 feet.  
Breadth of beam, 34 feet.  
Depth of hold, 14 feet.  
Built at Sorel shipyard in 1903.

*Sounding Scow 'No. 1' (wooden hull).—*

Length over all, 60 feet.  
Breadth of beam, 25 feet.  
Depth of hold, 6 feet.  
Built at Sorel shipyard in 1898.

*Sounding Scow 'No. 2' (wooden hull).—*

Length over all, 75 feet.  
Breadth of beam, 38 feet.  
Depth of hold, 5 feet.  
Transferred from Prescott agency in 1909; re-modelled and improved.

*Floating shop (wooden hull).—*

Length over all, 90 feet 4 inches.  
Breadth of beam, 25 feet.  
Depth of hull, 9 feet.  
I forge, 1 scraper, 1 emery wheel, 1 drill, 1 lathe, 1 6 h.p. Foss gasoline engine.  
Living quarters for four.  
Built at Sorel shipyard in 1908.

*One Boarding Scow (wooden hull).—*

Length over all, 60 feet.  
Breadth of beam, 18 feet.  
Depth of hold, 7 feet.  
Built at Sorel shipyard in 1908.

*One Boarding Scow (wooden hull).—*

Length over all, 75 feet.  
Breadth of beam, 25 feet.  
Depth of hold, 5.5 feet.  
Built at Sorel shipyard in 1902.

*Two Hopper Scows (wooden hulls) with hydraulic power for closing gates.—*

Length over all, 97 feet.  
Breadth of beam, 24.5 feet.  
Depth of hold, 9 feet.  
Capacity 200 cubic yards.  
Built at Sorel shipyard in 1897.



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*Two Hopper Scows (wooden hulls) with hydraulic power for closing gates.—*

Length over all, 90 feet.  
Breadth of beam, 18 feet.  
Depth of hold, 7 feet.  
Capacity, 150 cubic yards.  
Built at Sorel shipyard in 1898.

*Four Hopper scows (wooden hulls) with hydraulic power for closing gates.—*

Length over all, 97 feet.  
Breadth of beam, 24 feet.  
Depth of hold, 9 feet.  
Capacity, 200 cubic yards.  
Built at Sorel shipyard in 1899 and 1901.

*Five Hopper Scows (wooden hulls) with hydraulic power for closing gates.—*

Length all over, 98 feet.  
Breadth of beam, 24 feet.  
Depth of hold, 9.5 feet.  
Capacity, 300 cubic yards.  
Built at Sorel shipyard, 2 in 1901, 3 in 1902.

*Two Hopper Scows (wooden hulls) with hydraulic power for closing gates.—*

Length over all, 97 feet.  
Breadth of beam, 24.5 feet.  
Depth of hold, 9 feet.  
Capacity, 300 cubic yards.  
Built at Sorel shipyard in 1903.

*Two Hopper Scows (wooden hulls) with hydraulic power for closing gates.—*

Length over all, 93 feet.  
Breadth of beam, 24.5 feet.  
Depth of hold, 8 feet.  
Capacity, 250 cubic yards.  
Built at Sorel shipyard in 1909.

*Two Small Flat Scows (wooden hulls) used at the Sorel shipyard.—*

20 feet by 40 feet.  
One of these with a derrick of 5 tons lifting capacity.



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## APPENDIX No. 4.

## SOREL SHIPYARD.

SOREL, July 15, 1911.

ALEX. JOHNSTON, Esq.,  
Deputy Minister, Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit the following report on work performed at the Sorel shipyard during the fiscal year, 1910-11.

At the beginning of the fiscal year, the most important work on hand was the repairs and equipment of the fleet of vessels wintering at the shipyard. This consisted at the time, in about 65 vessels, dredges, tugs and scows of different descriptions, belonging to the dredging fleet, and 10 other crafts of the other branches.

## SPRING REPAIRS.

This work was the continuation and completion of the work carried on during the previous winter and described in the report for 1909-10.

Although, owing to a mild winter, the opening of navigation was earlier than usual the vessels were ready to go out as soon as the state of the river allowed the work of dredging to be started.

The Richelieu river was free of ice on March 27, and the St. Lawrence on April 2. Dredges Nos. 2, 3, 4 and 5 left Sorel on April 11, to resume their respective work.

## CONSTRUCTION.

Work was continued on vessel No. 21 now known as the *Montmagny*. The vessel was completed, painted, furnished, &c.

Trial trip was made on July 2, and the vessel was sent to Quebec on July 3.

*Dredge, Construction No. 19.*—Was completed in July 1910, and put to work. This dredge is known as No. 10.

*Tug, Construction No. 29* was completed and put in commission under the name of *Contrecoeur*.

*Elevator Dredge, Construction No. 26.*—Work was begun on Elevator dredge, Construction No. 26, the hull was launched on November 22.

*Dipper Dredge No. 24* was sufficiently advanced to be launched on October 29. Since then, the installation of machinery has gone on; the woodwork has been commenced and the whole dredge is in a fair way to completion.

*Life-saving boats.*—Two self-bailing motor boats have been built for the life-saving service. They were completed and put on trial, November 16, 1910.

*Dumping Scows, Construction No. 28.*—Two wooden scows were begun in September, 1910, and completed during winter, ready to be launched in April, 1911. The scows are 92 feet long, 26½ feet wide, 8½ feet deep and have four wells holding together 200 cubic yards of material.

*Wooden Tug, Construction No. 35.*—To be 92 feet long by 22 feet beam by 6 feet draught was begun in 1910.

The vessel will have twin screw propellers and engines of 400 horse-power. At the end of the fiscal year, the hull is complete. The engines are built under contract with the St. John Iron Works, New Brunswick.



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*Sounding Scow, Construction No. 39.*—A sounding scow was begun during winter of 1911, and remains to be completed in the coming year.

*Coal Barge Construction No. 32.*—This barge is of steel throughout, and will be 500 tons capacity.

At end of fiscal year, work was progressing on this vessel, with a view of launching the hull early in the spring.

*Sand Scow, Construction No. 33.*—This is a steel dumping scow of 200 yards capacity. The wells will be fitted with conical valves worked by hydraulic cylinders. The work is in progress.

Besides the above constructions, plans and model for two steel tugs, were prepared. The material has been ordered and was almost completely delivered before end of fiscal year.

The engines for these two tugs are also under contract with the St. John iron works, and will be exact counterparts of the engines for the tug No. 35.

*Rock Breaker, Lobnitz system.*—During summer of 1910, the machinery was received for a rock breaker for submarine work. This was installed on board a scow built under Construction No. 20, and intended as a stone lifter. The rock breaker was completely installed and put in commission.

#### MAINTENANCE AND IMPROVEMENTS TO BUILDINGS AND PLANT OF THE SHIPYARD.

The whole of the buildings were maintained and repaired, and kept in good working order, so were the narrow gauge railway, the waterworks system, compressed air distribution, electric power lines and internal telephone lines.

The side walls of the buildings were painted, an extension made to the wooden platform of the coal wharf.

*Building No. 2.*—Galvanized roof was repaired. In the main boiler shop, one coping machine and two new punches were installed.

*Building No. 3.*—Building No. 3 had ordinary repairs and painting, and change was made in the stairs leading to the mould loft.

*Building No. 4.*—This contains the offices and stores. The floor had to be braced from underneath, as everything is so decayed that the floor was sinking.

*Building No. 5, Machine shop.*—A boring mill of 96 feet diameter and one 8-foot planer were purchased; one 55 h.p. motor was installed.

*Building No. 6, Blacksmith shop.*—One new smoke stack was added and the exhaust box repaired. One 500 lbs. Beaudry power hammer was installed with a 10 h.p. motor. One 1,500 lbs. jib crane was also added to serve the new hammer and two forges.

*Building No. 17, Saw mill.*—Alterations were made to the sawdust exhaust pipe. A drain was made and an automatic water closet installed with building for same. One motor of 150 h.p. replaces the 100 h.p. motor used heretofore, and the 100 h.p. motor replaces a 55 h.p. one, so as to have ample power in the coldest weather.

The 55 h.p. motor has been removed to the machine shop.

*Building No. 14,* used as an oil shed, was removed and set up in rear of building No. 13, so as to leave a clear avenue along the shed No. 15.

The whole of the buildings were, as mentioned above, maintained in working order and painted.

*Ship-hauling ways.*—The old ways were put in order; some new timbers being placed.

The new ways of No. 2, had considerable repairs. Four cross beams built of steel and angles, were placed and the deep water pier was lengthened.



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The 30-ton crane installed over the railway tracks was equipped this year, with an auxiliary trolley for quicker motion with small loads, and also with raised platform for operating the winches.

An air compressor with a 35 h.p. dynamo, was placed in the boiler shop, and four transformers were installed in the power house, to supply current for the new motors of the punching machines, &c.

Besides the above, some work was performed for the Signal Service station at Sorel, and those at Three Rivers and Crabe Island stations.

The wharfs Nos. 1, 2 and 3 had ordinary repairs and on wharf No. 4, the wooden platform for the coal was extended as mentioned before.

In November and December, the whole dredging fleet returned to winter quarters at Sorel, with the exception of dredge No. 10 and tug *Champlain*, now the *Lanoraie*, which wintered in Montreal. There were also at the shipyard, *La Canadienne*, the *Shamrock*, the *Vercheres*, and the *Hosanna*, belonging to other branches of the government. All these vessels were placed in winter quarters, the ice cut around the vessels as needed, the winter roads were kept clear throughout the yard and the river front.

Following is a list of the different vessels on which work was performed:—

## REPAIRS TO VESSELS.

*Acetylene* (barge) was hauled on October 1, 1910, and an iron sheathing put on at the water line forward. Besides this, the barge underwent ordinary current repairs.

*Adelard* (scow).—A steam connection was made and installed for the sawing apparatus on board this scow, which belongs to the Construction of Lights Branch.

*The Alaska* (tug of the Sincennes-McNaughton line) was hauled July 26, 1910. Subsequently there were extensive repairs to the ways, as the vessel broke through the cross logs when being launched.

*Alpha* (a small covered steam launch).—This vessel was hauled November 21 for wintering. During the summer of 1910 there was some work done on the vessel to make her ready for a short cruise. During winter of 1911 a little caulking was done to her hull.

*Barge No. 1* had the ordinary maintenance repairs. During winter 1911 the guards were renewed and part of the deck was overhauled and caulked. One pair of davits was supplied to handle boat at the stern.

*Barge No. 2* was at the shipyard during winter 1911, and had repairs to wood-work only.

*Barge No. 3* had a revolving mooring head installed. She was hauled July 14, 1910, for repairs to her rudder. The hoisting engine had new piston rings and keys to eccentrics; the windlass was lifted so as to caulk the deck underneath and make it water tight. There were also light repairs during the winter.

*Barge No. 4* had repairs to boiler and steam connections in summer 1910. In winter 1911 repairs to guards and deck.

For *Bayfield* one pair of davits, 3" diameter x 13" long, were supplied.

*Bronx* (a gasoline launch).—In 1910, the hull was overhauled; part of the ribs and side planking were renewed. The boat also had ordinary maintenance.

*Carmelia* (tug).—During summer 1910, the masonry behind the boiler was rebuilt and the boiler tubes had to be repaired several times. The vessel was also hauled, on August 4, 1910 to receive a new propeller. During winter 1911 a new return tubular boiler was built and installed on board; the pipe connections were made anew and some light repairs to the machinery and hull.

*Cartier* (tug).—In winter 1911 had repairs to deck, aft. The guards and housing were also repaired; the lower part of the smoke box of the boiler was made new and the piston and link and thrust blocks were repaired.



*Champlain* (tug).—This tug is now known as the *Lanoraie*. In summer 1910 there were general repairs to the piping and connections. She was hauled twice, viz.: June 6 and October 26 for new propeller wheels, this tug having been at work in shallow water near Montreal.

*Coal Scow*.—This scow was overhauled and a railing with braces put around the deck so as to serve for coal transportation.

*Contrecoeur* (tug).—This vessel was completed at the shipyard in 1910 and put in commission in July to serve the new dredge No. 10. The boat was hauled on October 6 to place a larger screw propeller which better suited the power of her engines. During winter 1911, general repairs of light nature were made.

*Davis* (barge).—Had only ordinary repairs of unimportant nature.

*Daisy* (tug) of the Public Works Department was hauled July 26, 1910 for repairs to her stern tube and brackets.

*De Levis* (tug) was hauled June 17, 1910, for repairs to stern tube and rudder and shaft. She was also hauled on November 12, and a new right hand propeller wheel and right hand bracket were installed. The hull was painted in June and there were the ordinary maintenance repairs. During winter 1911 the rudder chains were overhauled, the deck caulked where found defective and the cotton duck covering of the upper deck was repaired and painted.

#### DREDGES.

*Dredge No. 1*.—There were some repairs to the buckets and one new lower tumbler was placed. Carpenters repaired the coamings, upper deck and the canvas covers. The deck guard and rails were also repaired, as well as the step of the A frame.

A new shaft was placed on the dynamo; a new casing to the boiler. The steam pipe connections were improved by making them of flanged pipes. The forward breasting winch had some repairs.

*Dredge No. 2*.—There were light repairs to piping and to search light and some caulking on the boiler during season of 1910.

During the winter 1911, buckets were repaired. The step of the 'A' frame and side fenders were repaired. The sides of hull and of well above water line were caulked.

A new 1½-inch wire cable was issued. There were the ordinary repairs to the machinery, the brackets of the ladder frame were rivetted anew. The smoke box fastening was renewed and the several boiler tubes were caulked.

*Dredge No. 3*.—The pipe connections were improved with cast steel flanges. A few deck planks were replaced during the season.

An upper tumbler casting was prepared during the summer to be installed the following winter.

During the winter, 1911, there were repairs to the buckets, the shoot and to the woodwork generally, also to the search light rheostat to main engines and to the stern and bow winches. The front of one boiler was caulked and the two connection chambers repaired.

*Dredge No. 4*.—During season 1910, there were current repairs to the steam piping, also to the frame of the main winch. A new lower tumbler for ladder frame was prepared at the yard and shipped to be installed on board.

During the winter of 1911, the buckets and bucket teeth were repaired, the wearing wooden sheathing on sides of ladder frame was renewed, the guards were repaired where needed.

The upper tumbler bearings were examined and babbitted. The lattice braces of the ladder frame were repaired. A new bush for lower tumbler was fitted. The winches and other machinery were overhauled, the dynamo armature was re-turned.



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A few of the boiler tubes were renewed; the steam piping was improved by having flanged connections instead of threaded ones. The electric wiring was renewed on half of the installation.

*Dredge No. 5.*—During the season of 1910, repairs to connections and search light were made.

During winter 1911, the sides of the well were strengthened by building a steel truss on each side of the same.

The guards were repaired and so was the shoot. The boiler on the port side was lifted and repaired, the smoke box had new fastenings and the studs were renewed.

One new boat was supplied and one repaired.

*Dredge No. 6.*—During season of 1910, repairs were made to boiler and connections. One lower tumbler bush was fitted and one new upper tumbler installed to replace one which had been in use several years.

During winter of 1911, 10 new buckets were made for this dredge and others were repaired, also new shoot plates (steel castings). The lower sides of boilers were repaired and several tubes removed in order to insure thorough cleaning. On the steam connections the flanged pipes were placed instead of threaded ones.

*Dredge No. 7.*—During the summer of 1910, the boilers had to be caulked on several occasions. One set of Diamond jet blowers was put on one of the boilers. The search light and dynamo were repaired.

During summer, four additional lengths, each 100 feet of the 30-inch discharge pipe were completed. In November, 1910, all the discharge pipes, 26 in number, were hauled on the ways; the wearing plates renewed on 8 lengths of the pipes. Others were repaired, woodwork and springs overhauled and rubber sleeves put in order.

The centrifugal sand suction pump was beginning to show appreciable wear, so that a cast steel lining in sections for the inside of the volute was cast on accurate models, and bolted to the outer shell. The lining consists of 65 pieces weighing together 10,285 lbs.

Important improvements to the set of four boilers of this dredge were also determined upon and begun. Eleven new corrugated furnaces were imported and the mode of connecting them with the combustion chambers was changed, thereby avoiding excessive thickness of metal at the inner end of the furnaces. The material for these alterations and also for the installation of a Howden draft system, was ordered and considerable work done on same before end of fiscal year. The machinery of the dredge was put in order as usual.

*Dredge No. 8.*—Two gypsey heads for the windlass, two brass check valves for the boilers were supplied; the 1½-inch wire rope was renewed.

During the winter 1911, the work of painting the inside of the hull was continued. The chain lockers were cleaned and painted, also the bulkheads, the bilges and the intermediate spaces below and around the hoppers, thus completing the painting of the hull inside. A wooden floor was made for the dynamo room in order to prevent the dust from the cement floor to injure the electrical machinery.

The cutter head blades were rivetted anew and the cutter head machinery overhauled. Two sets of Diamond jet blowers were installed on the boilers. Four ventilating cowls were lengthened so as to give better ventilation to boiler room.

The spare feed pump was connected to all bilge pumps so as to allow the pumps to be used alternately. A direct steam connection for dynamo engine as well as exhaust pipes, were installed, in view of ensuring better regulation of the dynamo which previously had the steam from the same pipe as main and cutter head engines, causing considerable fluctuation in pressure.

*Dredge No. 9.*—Two new leather dredging sleeves were imported from Germany, of which one is kept on hand to replace the present sleeve when completely worn.

Winter of 1911, one new dynamo was installed, capable of supplying 150 lamps instead of 60, as heretofore.



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The forecastle winch was lifted in order to get at the deck and make it water tight under the winch.

The crane truck of suction pipe was repaired, and the trunnions turned. The steering arrangement was repaired. The upper deck was caulked around the deck houses. The inside of the deck houses, galley, dining room, &c., were painted inside.

During the same winter, 130 plain and stay boiler tubes were renewed; one-fifth of the condenser tubes were renewed. A new set of plates was prepared for the inside of the turbine pump. Ordinary maintenance of dredge was attended to.

*Dredge No. 10.*—This dredge was built at the shipyard under No. 19. The vessel was put in commission in July, 1910, and a few improvements carried on, after operating for some time. The 8-yard bucket was repaired; the lip having been broken, had to be replaced. A new bale was also supplied. A spud keeper was placed so as to hold and guide the stern spud. Two new valves were made on plans of the consulting engineer, Mr. Kennedy, and installed. The bases of the friction levers were strengthened.

This dredge wintered at Montreal, and little was done to her machinery during the winter of 1911.

*Emilia* (tug).—The smoke box of boiler was repaired and also the piping. One twenty barrel raft was supplied in connection with service of dredge. The vessel was hauled on September 15, 1910, to repair the stern tube. The steering gear of tug *Lac St. Pierre* was installed on board. There were ordinary repairs to deck and engines.

*Falken* (Lightship southeast shoal No. 18).—The adapting of this vessel for lightship service was completed. The deck, hull and deck houses were painted. A submarine signal bell was installed and also an automatic whistling arrangement.

Two lifeboats and chucks were provided. A sanitary system was installed. A new railing was made; the hull inside the cargo space forward, was cemented and cross bunkers built. The deck was equipped, the rigging of masts was overhauled. Signal bells were made, and tackle provided for manœuvring the lanterns and signal bells. Anchors were supplied.

On May 6, the vessel was hauled on the ways, to scrape the bottom and paint the hull and overhaul the rudder; a windlass was also installed. The vessel left under her own steam to reach her station on Lake Erie, on May 10, 1910.

*Floating machine shop.*—This scow has no steam, the forge machinery being run by gasoline engine. The blacksmith and helpers live on board. A hot air heating arrangement was prepared and placed below deck, in fall of year 1910.

During the winter, 1911, the vessel received a coat of paint.

*Frontenac* (Survey tug).—The repairs of summer, 1910, were to the rudder chains, electric bells, also to bridges in the boiler furnaces. The boat was painted once during the summer.

During winter, 1911, two 25 gallons gasoline tanks were made, the hull above water line and the deck were caulked. The guards and rail were repaired. The steam windlass of the *James Howden* was installed on board the *Frontenac*.

The engines were overhauled, the bell wiring was put in order, and there were the ordinary repairs to the machinery and boilers.

*Hosanna* (tug).—In spring of 1910 the vessel was launched after wintering on the ways, where the hull had been partly rebuilt. One boat was supplied.

During the summer there were only light repairs.

*Iberville* (tug).—In summer, 1910, one awning was supplied for the deck astern. There were repairs to steam connections and to bridges in the boilers. One hand wheel and added to the steam steering gear.

In winter, 1911, the guards and coamings were repaired, the bottom of the water pan of the boiler was also repaired.



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*James Howden* (tug).—The electric bells were overhauled. The galley floor was repaired and also the pony pump. Some stay rods were caulked in the boiler.

The vessel was hauled on November 28, for wintering. In winter, 1911, the stem of the vessel was repaired. The hull and deck were caulked throughout. A new windlass of the shipyard pattern was placed on board, and the old one was removed to another tug. There were also ordinary repairs to the machinery and boiler.

*Jessie Hume* (tug).—A new awning for the deck astern was supplied. There was caulking done on the boiler and repairs to hull around the rudder post. The vessel was hauled September 23, to install a new shaft and new stern tube. The brackets were repaired and also the rudder shoe and bracket.

In winter 1911, the railing and guards were repaired, the deck caulked and a few planks renewed. Ordinary repairs were made to the machinery.

C.G.S. *La Canadienne*, was brought to the shipyard after going out of commission. The work on this boat has simply been caretaking.

*Lac St. Pierre* (tug).—Mud catcher for boiler was placed and there was caulking done to the boiler. The vessel was hauled once on April 26, to place new propeller wheel and repair the rudder. She was also hauled on May 16, for another new propeller wheel after meeting with an accident.

In winter 1911, the guards and stanchions on the port side were repaired. A new awning supplied. There were also general repairs to the machinery, pistons eccentric-bands, pipe connections and also to the boiler.

C.G.S. *Lady Grey*.—Work in the summer of 1910. The repairs consisted in overhauling the engine telegraph, painting the hull and davits and fixing the electric system. This vessel having worked all winter at ice breaking, the overhauling of the machinery was done at Sorel during June, 1910.

The whole machinery was put in good order and a set of three new propeller blades was supplied. Four doubling plates of about 50 feet in length on each side of the bow, were added to strengthen the vessel at water line.

The hull received two coats of paint. The vessel, not having wintered at Sorel, no work was done on her by the shipyard in 1911, before end of fiscal year.

*Maisonneuve* (yacht).—During the summer 1910, brass propeller wheel was supplied. The vessel was hauled for wintering in November, 1910.

The following repairs were made:—the seams were caulked with cotton and lead. The bowsprit was repaired and also the deck, skylight and railing. There were repairs to the feed pipe and some new link pins and a new set of grates. The rest of the machinery was overhauled and a new rose on the intake for the boiler feed was put on.

*Scow Lenore*.—Which does service with the *Maisonneuve*, was also brought here for winter. The seams were caulked and windlass was overhauled and two guys added to the derrick mast. The railing was repaired and also the house woodwork, a new window being added. One new low guard along the edge of the deck, was added and the derrick was furnished with a new boom. Iron sheathing at water line was placed at the stern and bow of the boat. She was launched at high water, in the spring.

*Monitor* (tug).—Of the Public Works Department, had her rudder stock repaired and light repairs to piping.

*Montcalm* (tug).—There were repairs to the W.C., to the steering gear and to the main engine. Two brass plugs were inserted in the boiler for cleaning purposes, the vessel was hauled July 19, 1910, to secure wheel on shaft and repair lignum vitæ in the stern tube. A shaft was straightened and the hull painted. This vessel's name has been altered to the *Lotbinière* under which it is now known.

In winter of 1911, the steering gear was repaired and there were light repairs to the woodwork and general repairs to the machinery, condenser and piston rod. The boiler was caulked in a few places.



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C.G.S. *Montmagny*.—The vessel was completed, outfitted, furnished, painted and put in commission, leaving Sorel on July 3. Since that, drawings for new propeller blades were prepared and a gasoline launch repaired for the *Montmagny*.

*Montmorency* (yacht).—The vessel was hauled for the winter on November 17, 1910.

*Oswegatchie*, of Public Works Department had a new funnel and the dynamo and electric wiring overhauled.

*Ottawa* (dredge).—In 1910, spring repairs were made to this dredge, one sea cock for the ejector was repaired as well as the pumps.

*Ottawa* (tug).—The *Ottawa* was hauled on May 3 to alter her propeller, and on May 29 she was hauled again and a new propeller put on. On October 20, she was also hauled for repairs to tail shaft and placing new bracket for propeller shaft. The hull was painted on the same occasion.

*Portneuf* (tug).—In summer of 1910, had caulking of boiler, repairs to bridge and also repairs to deck houses. The vessel was hauled June 15 to place one new propeller, and on July 16 for the same cause and also repairing the shaft gland. One new smoke stack was placed on and there were ordinary repairs to the machinery, pumps, link-block, &c.

*Pontoons of Dredge No. 7*.—As mentioned above, these pontoons were hauled out and put in good condition.

#### SCOWS.

During the season the following scows were hauled: *No. 1*, twice; *No. 6*, twice; *No. 8*, once; *No. 9*, once; *No. 10*, twice; *No. 12*, once; *No. 13*, twice; *No. 14*, once; *Nos. 15, 17 and 21* once each.

All these vessels were hauled for repairs to the hull or hopper doors. All the other scows were also kept in working order throughout the season.

*Shamrock* (steamer).—During 1910, there were light repairs to the hull and machinery. One coat of paint was given in the spring. A powerful four-drum winch was installed. The vessel was hauled on August 19 to repair and strengthen the stern.

In winter 1911, one hawse pipe was renewed on the starboard side; all the rear sections of the guard were repaired. The canvas covering on the upper deck was also repaired. One room with two berths was partitioned off in forward hold. Light repairs were made to the machinery. One 18-foot boat was built and supplied.

*Sounding Scow No. 1* and floating shop were painted. *Sounding Scow No. 2* was also painted.

*Stone Lifter No. 2*.—During summer 1910, one new smoke stack was built and repairs were made to boiler. During winter 1911, the large stone grips were repaired.

On May 18, 1910, this stone lifter was hauled so as to caulk the hull and the sides of the well.

*Stone Lifter No. 3*.—This vessel was hauled November 25. A new boat 18 feet long was built and supplied to the stone lifter, and the winches were overhauled.

*Stone Lifter No. 4*.—Was used as a rock breaker during latter part of the season. Strong breasting winches were installed for the special work of rock breaking in strong current, and the vessel was maintained in good order generally throughout the season.

*Verchères* (tug).—Was hauled on June 23, 1910, for repairs to the stern bracket and the rudder. The hull was caulked and the boat was painted twice during summer 1910.



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During summer 1911, there were general repairs to the machinery, grinding of the pistons, overhauling the main engine and steering engine. One marine check valve was placed on the feed pipe and slight repairs made on the boiler.

A plan of the river front, opposite the shipyard, shows the position of the several vessels for wintering.

The financial statement submitted shows a total expenditure of \$1,174,749.55, covered by appropriations for River St. Lawrence ship channel, for improvements to dredging plant and by transfers of money from other appropriations for which work was performed at the shipyard.

The average force employed at the shipyard for the fiscal year was 853 men, daily, and varied from 800 to 930 per day, all told.

I have the honour, to be, sir,

Your obedient servant,

L. G. PAPINEAU,  
*Director of Shipyard.*











APPENDIX No. 5.

STATEMENT of Expenditure for the fiscal year 1910-11.

Service.	Appropriation	Expenditure.	Balance.	Overdrawn.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Ocean and River Service—				
Dominion steamers and icebreakers.....	710,000 00	643,593 95	66,406 05	
Examination of masters and mates .....	11,400 00	5,801 62	5,598 38	
Rewards for saving life, &c.....	55,000 00	55,406 59	.....	406 59
Investigation into wrecks .....	15,000 00	8,016 97	6,983 03	
Schools of navigation, expenses of .....	8,000 00	2,177 45	5,822 55	
Registration of shipping .....	2,000 00	1,049 86	950 14	
Removal of obstructions in navigable waters.	20,000 00	8,820 95	11,179 05	
Winter mail service.....	7,000 00	6,818 41	181 59	
Salaries and expenses of cattle inspection ...	5,000 00	3,740 40	1,259 60	
Subsidy for wrecking plant, Quebec, Mari- time Provinces, and British Columbia....	30,000 00	30,000 00	.....	
Maintenance of vessels patrolling northern waters, &c. ....	69,000 00	66,753 91	2,246 09	
Compensation to Major J. D. Moodie for services in 1904-05 .....	1,000 00	1,000 00	.....	
Unfor-seen expenses.....	5,000 00	3,445 41	1,554 59	
	938,400 00	836,625 52	102,181 07	406 59
Public Works—chargeable to Capital—				
River St. Lawrence ship channel.....	800,000 00	779,985 04	20,014 96	
Construction of dredging plant, Montreal to Father Point. ....	250,000 00	249,980 91	19 09	
Purchase of yard property at Sorel .....	30,000 00	.....	30,000 00	
Permanent piers in Lake St. Peter, &c.....	50,000 00	20,932 87	29,067 13	
	1,130,000 00	1,050,898 82	79,101 18	
Lighthouse and Coast Service—				
Agencies, rents and contingencies .....	50,000 00	40,205 74	9,794 26	
Salaries and allowances to lightkeepers. ...	400,000 00	348,749 67	51,250 33	
Maintenance and repairs to lighthouses, &c..	750,000 00	707,485 42	42,514 58	
Services of H. Barrett, lifting buoys, &c....	400 00	400 00	.....	
Construction of Lighthouses, including West Coast Trail.....	} 1,000,000 00	{ 418,049 36	} 368,103 18	
Construction of apparatus, &c.....		{ 213,847 46		
Signal service .....	12,000 00	9,599 67	2,400 33	
Administration of pilotage, Str. <i>Eureka</i> ...	35,000 00	34,781 54	218 46	
Maintenance and repairs to wharfs.....	5,000 00	3,259 90	1,740 10	
Ice-breaking in Lake Superior, &c .....	40,000 00	36,060 00	3,940 00	
Telephonic reporting station below Montreal	24,000 00	20,978 18	3,021 82	
Repairs to Maritime Road, Gaspé.....	1,000 00	1,034 88	.....	34 88
Charter of steamer, Lime kiln Crossing.....	10,000 00	150 00	9,850 00	
Pension to retired pilots.. ..	5,850 00	4,922 72	927 28	
Telephones in connection with aids to navi- gation .....	10 000 00	.....	10,000 00	
New lighthouse and buoy Steamer to replace <i>Shamrock</i> .....	175,000 00	1,126 09	173,873 91	
New lighthouse and buoy steamer for Pacific Coast.....	200,000 00	3,726 43	196,273 57	
Allowance to Mrs. Elizabeth L. Kerr.....	4,100 00	4,100 00	.....	
Compensation to Mr. Thos. Harling.....	500 00	500 00	.....	
	2,722,850 00	1,848,977 06	873,907 82	34 88 .
Scientific institutions—				
Meteorological service .....	139,300 00	129,594 49	9,705 51	
Magnetic observatory, Toronto.....	3,200 00	2,142 93	1,057 07	
Montreal observatory.....	500 00	500 00	.....	
Kingston observatory ...	500 00	500 00	.....	
	143,500 00	132,737 42	10,762 58	
Marine hospitals—				
Maintenance and repairs of marine hospitals	70,000 00	54,859 50	15,140 50	
Shipwrecked and distressed seamen. ....	3,000 00	1,304 23	1,695 77	
	73,000 00	56,163 73	16,836 27	



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STATEMENT of Expenditure for the fiscal year 1910-11—*Concluded.*

Service.	Appropriation	Expenditure.	Balance.
	\$ cts.	\$ cts.	\$ cts.
Steamboat Inspection—			
Salaries and expenses of Steamboat Inspectors .....	53,300 00	42,818 47	10,481 50
Fisheries—			
Salaries and disbursements of Fishery officers.....	220,000 00.	181,078 28	38,921 72
Salary of K. W. McKenzie as special guardian.....	125 00	.....	125 00
Compensation to Fishery Overseer, Wm. Robichaud.....	2,400 00	2,400 00	.....
Fish breeding establishments.....	322,300 00	220,727 66	101,572 34
Oyster Culture.....	10,000 00	4,026 68	5,973 32
Cold Storage for bait, &c.....	40,000 00	11,231 49	28,768 51
Dog-fish reduction works.....	60,000 00	46,486 61	13,513 39
Canadian Fisheries exhibits.....	16,000 00	3,168 42	12,831 58
Distributing of fishing bounty.....	6,000 00	4,881 73	1,118 27
Building fishways.....	10,000 00	1,731 88	8,268 12
Legal and incidental expenses.....	4,000 00	886 14	3,113 86
Georgian Bay laboratory.....	2,000 00	1,150 45	849 55
Marine biological station.....	15,000 00	8,549 98	6,450 02
Transportation of fresh fish.....	50,000 00	48,141 97	1,858 03
Fishery commission.....	15,000 00	9,603 97	5,396 03
Services of officers <i>re</i> modus vivendi licenses.....	761 62	761 62	.....
Services of customs officers <i>re</i> fisheries intelligence bureau	500 00	260 00	240 00
International fisheries commission.....	10,000 00	344 06	9,655 94
Inquiry into rights, Federal and Provincial Governments <i>re</i> fisheries.....	10,000 00	.....	10,000 00
Settlement of British Columbia Government's claim for license fees collected in 1901-1907 .....	56,137 00	56,137 00	.....
	850,223 62	601,567 94	248,655 68
Civil Government salaries.....	255,450 00	203,702 49	51,747 51
Contingencies ..	30,000 00	25,496 73	4,503 27
Fishing bounty .....	160,000 00	159,166 75	833 25
Recapitulation—			
Ocean and river service.....	938,400 00	836,625 52	101,774 48
Public works, chargeable to capital.....	1,130,000 00	1,050,898 82	79,101 18
Lighthouse and coast services.....	2,722,850 00	1,848,977 06	873,872 94
Scientific institutions.....	143,500 00	132,737 42	10,762 58
Marine hospitals .....	73,000 00	56,163 73	16,836 27
Steamboat inspection .....	53,300 00	42,818 47	10,481 53
Fisheries.....	850,223 62	601,567 94	248,655 68
Civil government salaries.....	255,450 00	203,702 49	51,747 51
Contingencies.....	30,000 00	25,496 73	4,503 27
	6,196,723 62	4,798,988 18	1,397,735 44
Fishing bounty .....	160,000 00	159,166 75	833 25



## APPENDIX No. 6.

## STATEMENT of Revenue for fiscal year ended March 31, 1911.

Service.	Amount.	Refunds.	Total.
	\$ cts.	\$ cts.	\$ cts.
Harbours, piers and wharfs.....	21,821 15	491 50	21,329 65
Dominion steamers—			
<i>Champlain.</i>			
Freight, \$1,805.99 ; passengers, \$4,925.81 ; meals, \$121.40 ; berths.	6,853 20		
<i>Earl Grey.</i>			
Freight, \$8,740.45 ; passengers, \$3,731.75 ; meals, \$143.90 ; berths, \$1,011.00.....	\$13,627 10		
Less to be accounted for in 1911-12.....	1,124 61		
	12,502 49		
<i>Minto.</i>			
Freight, \$2,975.82 ; passengers, \$1,807.25 ; meals, \$71.40 ; berths, \$423.00.....	\$5,279.47		
Less overcharge on freight .....	33 94		
	\$5,245 53		
Account belonging to fiscal year 1909-10 .....	963 00		
	\$6,208 53		
To be accounted for in 1911-12 .....	967 94		
	5,240 59	4 00	24,592 28
Decayed pilots fund.....	5,206 61		5,206 61
Steamboat inspection fund.....	4,083 60		4,083 60
"    engineers fees.....	1,501 50		1,501 50
Sick mariners fund.....	55,567 41	137 34	55,430 07
Signal station daes .....	613 00		613 00
Marine register fees.....	29 59		29 59
Fines and forfeitures.....	851 43	540 00	311 43
Examination masters and mates.....	4,446 61	15 00	4,431 61
Winter mail service .....	152 00		152 00
Civil service insurance.....	13 00		13 00
Casual revenue, marine.....	37,305 92	508 09	36,797 83
"    fisheries.....	29,913 12		29,913 12
Fisheries revenue.....	95,969 38	10,184 30	85,785 08
Modus vivendi.....	15,076 50		15,076 50
Total .....	297,147 10	11,880 23	285,266 87



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FISHERIES revenue for fiscal year ended March 31, 1911.

Province.	Amount collected.	Refunds.	Net revenue.
	\$ cts.	\$ cts.	\$ cts.
Ontario .....	280 25	.....	280 25
Quebec .....	5,336 61	.....	5,336 61
New Brunswick .....	12,996 84	.....	12,996 84
Nova Scotia .....	7,749 60	.....	7,749 60
Prince Edward Island .....	2,499 63	.....	2,499 63
Manitoba .....	8,212 75	89 30	8,123 45
Saskatchewan .....	1,246 00	.....	1,246 00
Alberta .....	698 50	.....	698 50
Hudson Bay Territory .....	100 00	.....	100 00
British Columbia .....	55,921 70	10,075 00	45,846 70
Yukon .....	927 50	20 00	907 50
Total .....	95,969 38	10,184 30	85,785 08
Modus Vivendi Licenses ..	.....	.....	15,076 50
Grand total .....	95,969 38	10,184 30	100,861 58



For the Year ended March 31, 1911, Minor Public Works—Revenue—Wharfs, Piers and Harbours.

Locality.	Wharfinger.	Date of appointment.	Remuneration allowed.	Net revenue.
<i>Ontario.</i>			p.c.	\$ cts.
Blind River.....	W. H. McGauley.....	April 14, 1908..	50	790 12
Brontè .....	J. J. Wilson. ....	Oct. 26, 1905..	25	50 25
Bruce Mines.....	W. Flemming.....	Apr. 15, 1902..	25	119 03
Burke Falls.....	A. J. Collins.....	Feb. 28, 1907..	25	37 35
Chute à Blondeau.....	O. Cousineau .....	May 28, 1909..	40	137 21
Cockburn Island.....	H. R. McAllister.....	Apr. 18, 1907..	25	45
Cooks Bay.....	Chas. Kent.....	May 28, 1909..	50	17 34
Haileybury.....	R. B. Jessup.....	May 8, 1908..	25	515 08
Honora .....	G. E. Hawke.....	May 12, 1909..	25	26 50
Kingsville.....	W. H. Black.....	Aug. 1, 1902 ..	25	174 01
L'Original.....	E. A. Hall .....	Mar. 23, 1904..	25	177 78
Leamington.....	J. E. Johnston.....	May 11, 1906..	25	225 02
Maganetawan.....	Conard Ross... ..	Apr. 6, 1910..	25	37 95
Midland.....	J. Gates.....	Oct. 26, 1905..	25	419 28
Oshawa.....	W. T. Henry.....	Aug. 10, 1904..	\$400 per annum.	3 00
Pélée Island.....	H. Henderson.....	Feb. 2, 1907..	25	242 85
Pembroke .....	T. Anderson.....	Apr. 27, 1906..	\$200 per annum.	100 00
Richard's Landing.....	R. Armstrong .....	June 10, 1907..	50	101 32
Rondeau.....	W. R. Fellows .....	Dec. 17, 1893..	25	58 89
Rosseau.....	A. Monteith .....	Aug. 6, 1908..	50	125 20
Sault Ste Marie.....	G. S. Boyd... ..	Apr. 30, 1901..	\$100 per month during navigation season....	995 22
Scudder's Wharf.....	C. B. Quick.....	July 29, 1909..	25	161 64
Sheguiandah.....	Wm. Stevens.....	Nov. 8, 1910..	25	124 26
Southampton.....	Geo. McVittie.....	.....	25	421 75
South Lancaster.....	J. D. Perron.....	May 6, 1907 ..	25	127 92
Tenby Bay.....	Jas. Bolt.....	Dec. 13, 1909..	25	12 95
Thessalon.....	D. J. Sandle.....	Apr. 22, 1902..	50	205 56
Treadwell.....	J. Smith.....	May 18, 1909..	40	107 88
Wendover.....	H. Lacasse.....	Jan. 14, 1907..	50	40 43
Warton.....	W. Gilbert.....	Nov. 23, 1907..	25	250 50
				5,806 84
<i>Montreal District.</i>				
Cedars.....	C. Laboursadiere.....	May 27, 1907..	50	10 92
Coteau du Lac.....	H. Saluré... ..	Apr. 10, 1908..	50	15 97
Coteau Landing.....	Napoleon Beriault. . .	June 29, 1910..	25	28 70
Graham .....	A. Bertrand.....	Feb. 22, 1904..	25	43 16
Hudson .....	A. W. Mullen.....	July 13, 1904..	50	78 18
Ile Perrot Nord.....	Orphie Legault.....	May 30, 1910..	15	35 86
Lacolle.....	R. J. Robinson.....	Mar. 6, 1894..	25	9 03
Longueuil.....	E. Denicourt.....	May 15, 1901..	25	36 45
Magog.....	D. Peters.....	June 15, 1906..	50	79 54
Masson .....	.....	.....	.....	2 00
Peel Head Bay.....	S. N. Ray.....	.....	25	6 75
Pointe Fortune.....	Wm. Brown.....	Apr. 26, 1910..	25	84 41
Rigaud.....	O. Mallette.....	.....	.....	52 68
Pointe à Valois.....	L. Castonguay.....	.....	50	53 38
St-Anicet.....	S. Dupuis.....	Sept. 14, 1896..	25	21 93
St-Anne de Bellevue.....	M. C. Bezner.....	May 21, 1908..	50	183 05
St-Zotique.....	A. Bissonnette.....	May 7, 1906 ..	25	11 33
Vaudreuil.....	J. A. Valois.....	Apr. 21, 1910..	25	36 04
Sorel Harbour .....	J. A. Prouix .....	June 6, 1901..	\$400 per annum.	100 00
				889 38



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For the Year ended March 31, 1911, Minor Public Works—Revenue—Wharfs, Piers and Harbours—*Continued.*

Locality.	Wharfinger.	Date of appointment.		Remuneration allowed.	Net revenue.
				p. c.	\$ cts.
<i>Quebec district.</i>					
Anse aux Gascons.....	S. Chapados .....	Feb.	16, 1905..	25	49 14
Anse à L'Islet.....	G. Mollog.....				89 88
Anse St-Jean.....	F. Lavoie.....	May	13, 1905..	\$19 per annum..	66 03
Baie St-Paul.....	E. Coude.....	Oct.	26, 1905..	\$32 per annum..	63 00
Beauport.....	P. Langlois.....	Oct.	19, 1909..	50	33 48
Berthier.....	J. Blais.....	Nov.	7, 1905..	50	104 75
Carleton.....	B. Leclerc.....	June	13, 1905..	\$50 per annum..	40 60
Cap à l'Aigle.....	A. Dufour.....	May	11, 1906..	\$18 per annum..	40 00
Chicoutimi.....	T. Tremblay.....	May	23, 1901..	\$122 per annum..	493 94
Grand River.....	G. Beaudin.....	Nov.	16, 1896..	25	174 53
Grindstone.....	J. Ballantyne.....	Dec.	22, 1909..	25	321 72
Les Eboulements.....	Capt. T. Tremblay.....	June	23, 1910..	\$29 per annum..	62 00
L'Islet.....	Under lease .....				25 00
Matane.....	L. J. Thériault.....	Feb.	11, 1911..	50	184 28
Murray Bay.....	J. Gagnon.....	May	16, 1906..	\$40 per annum..	168 60
New Carlisle.....	J. Chisholm .....	Apr.	22, 1902..	25	107 59
Paspébiac.....	Julien DeCaen.....	Feb.	22, 1903..	50	70 83
Percé.....	E. Bourget.....	Mar.	11, 1903..	25	244 04
Port Daniel.....	F. X. Gagnon.....	Feb.	26, 1907..	\$50 per annum..	10 41
Rimouski.....	N. Lavoie.....	Mar.	27, 1907..	50	87 59
Rivière du Loup.....	L. J. Puize.....	Nov.	7, 1905..	\$146 per annum..	413 62
St. Alphonse de Bagotville.....	F. Fortier.....	Apr.	20, 1909..	\$48 per annum..	150 45
St. Cécil du Bic.....	J. Santerre.....	May	28, 1909..	25	44 25
St. Irénée.....	G. Bouchard.....	Feb.	10, 1903..	25	6 95
St. Jean d'Orléans.....				50	80 00
St. Laurent d'Orléans.....	G. Godbout.....	May	11, 1904..	50	26 00
St. Nicholas.....	Under lease .....				25 00
St. Siméon.....	L. Savard.....	May	7, 1908..	25	24 09
St. Thomas de Montmagny.....	H. Dionne .....	Oct.	22, 1896..	25	71 40
Tadousac.....	A. Gingras.....	May	29, 1906..	\$30 per annum..	119 41
					\$3,403 49
<i>New Brunswick.</i>					
Anderson's Hollow.....	H. T. Copp.....	May	30, 1910..	25	145 17
Black River.....	F. G. McLeod.....	Sept.	26, 1907..	25	40 06
Campbellton.....	G. E. Asker.....	May	11, 1904..	25	1,923 84
Cape Tormentine.....	M. B. Rielly.....	June	23, 1905..	25	364 34
Caraquet.....	R. Friolet.....	Sept.	11, 1906..	25	43 76
Dalhousie.....	W. S. Smith.....	June	27, 1891..	25	406 33
Gardner's Creek.....	J. J. Armstrong.....	Dec.	22, 1909..	25	19 59
Hopewell Cape.....	G. D. Wilson.....	Apr.	10, 1899..	25	28 26
Lameque.....	N. Chiasson.....	Nov.	28, 1906..	25	36 14
Petit Roche.....	J. Boudreau.....	Aug.	27, .....	25	11 74
St-John .....	E. C. Elkin.....	Nov.	18, 1910..	25 (not to exceed \$1,500 in any calendar year).	633 30
Shippegan.....	G. J. Henry.....	Apr.	6, 1910..	25	34 28
Tracadie.....	Louis Breau.....	Oct.	12, 1910..	25	32 02
					\$3,778 74
<i>Nova Scotia.</i>					
Babin's Cove.....	A. Thomas .....	Oct.	20, 1897..	25	14 31
Barrington.....	J. H. Christie.....	Aug.	31, 1896..	25	84 30
Bayfield.....	R. Grant.....	Apr.	23, 1902..	25	11 43
Bear Point.....	J. Smith.....	May	23, 1902..	25	3 35
Belliveau Cove .....	S. C. Thériault.....	Nov.	24, 1892..	25	92 60
Black Point.....	J. P. Littlewood.....	Jan.	8, 1904..	25	20 24
Bridgewater harbour.....	W. Oakes.....	Jan.	28, 1896..	\$100 per annum..	52 00
Brooklyn.....	J. McLeod.....	Aug.	3, 1904..	25	60 40
Canada Creek.....	H. Dickey.....	Aug.	12, 1899..	25	6 84
Canso.....					14 16
Cape Cove.....	B. Doucette.....	Feb.	8, 1907..	25	17 55



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For the Year ended March 31, 1911, Minor Public Works—Revenue—Wharfs, Piers  
and Harbours—Continued.

Locality.	Wharfinger.	Date of appointment.	Remuneration allowed.	Net revenue.
<i>Nova Scotia—Continued.</i>			p. c.	\$ cts.
Centreville.....	A. Ward .....	May 23, 1897..	25	94 62
Church Point... ..	L. Belleveau.....	Mar. 26, 1907..	25	59 17
Cranberry Head.....				5 25
Deep Brook .....	C. D. Ray.....			4 47
Delap's Cove.....	R. W. McCaul .....	Nov. 28, 1889..	25	3 81
D'Escousse .....	Leon Poirier .....	May 31, 1906..	25	54 33
Digby.....	W. W. Hayden.....	April 20, 1897..	25	2,870 38
Freeport.....	J. Fairfield.....	March 3, 1911..	25	48 74
Granville Centre.....	H. Rooney.....	July 6, 1903..	25	97 80
Hall's Harbour.....	T. A. Neville.....	Jan. 8, 1897..	25	68 81
Hampton .....	C. Dunn .....	Dec. 22, 1906..	25	18 91
Harbourville.....	L. D. Curry.....	Dec. 29, 1906..	25	32 16
Horton Landing.....	F. G. Curry.....	April 30, 1898..	25	9 61
International Pier Harbour...	M. J. Neville.....	Oct. 30, 1880..	\$300 per annum.	16 50
Isaac's Harbour.....	T. D. Cook.....	Jan. 30, 1902..	25	9 84
East Jeddore .....	Enos Parker.....	May 9, 1910..	25	18 69
Jordan Bay.....	J. Fredericks.....	Feb. 20, 1900..	25	29 39
Lunenburg Harbour.....	J. B. Heckman.....			23 50
Margaretsville.....	D. H. McLean .....	July 10, 1907..	25	83 42
Meteghan Cove.....	M. S. Robichaud .....	Dec. 7, 1909..	25	16 81
Meteghan River .....	Antoine Melanson.....	Sept. 26, 1910..	25	13 82
Morden .....	John Duggan.....	April 7, 1910..	25	6 92
Newellton .....				29 14
Oak Point.....	Under lease.....			200 00
Owl's Head.....	David Palmer, jr. ....	March 22, 1910..	25	16 04
Parker's Cove.....	Curtis Halliday.....	Oct. 12, 1910..	25	11 08
Picketts .....	F. Eaton.....	Aug. 2, 1899..	25	60 34
Port George.....	O. Douglas.....	June 26, 1900..	25	34 65
Port Hawkesbury.....	F. McInnes .....	March 20, 1907..	25	379 22
Port Hood.....				2 50
Port Latour .....	C. D. Cook.....	Aug. 20, 1904..	25	23 95
Port Lorne .....	F. Beardsley .....	June 22, 1897..	25	39 49
Port Morien.....	D. F. McAuley.....	Nov. 6, 1906..	7½	550 30
Port Mouton .....	Geo. Cook.....	Dec. 28, 1905..	25	6 50
Port Philip.....	H. Johnson.....	Sept. 3, 1909..	25	9 87
Port Wade .....	J. D. Apt.....	Sept. 12, 1907..	25	60 53
Poulamond .....	B. Boudrot.....	June 4, 1906..	25	49 88
Ray's Creek .....				27 87
Saulniersville .....	J. F. Saulnier.. ..	Aug. 25, 1888..	25	9 53
Shag Harbour .....	A. Smith.....	Oct. 28, 1909..	25	7 80
Swims Point.....	J. T. Duncan.....	Jan. 30, 1909..	25	109 55
Tiverton.....	B. Blackford .....	Oct. 17, 1906..	25	7 74
West Arichat.....	H. H. Sampson.....	June 21, 1909..	25	30 65
West Head.....	H. N. Newell .....	July 2, 1910..	25	27 09
West Pubnico.....	C. C. D'Entremont ..	March 28, 1898..	25	23 49
Wolfville... ..	J. L. Franklin.....		25	29 46
				5,710 89
<i>Prince Edward Island.</i>				
Aitken's Ferry ..	B. Aitken .....			2 08
Annandale.....	W. C. Jenkins.....	May 4, 1897..	25	47 44
Bay View.....	J. Harrington.....	Oct. 2, 1885..	25	27 21
Belfast.....	F. Halliday .....	May 1, 1901..	25	26 17
Brush Wharf.....	H. H. McDonald.....	April 21, 1910..	25	13 73
Chapel Point.....	R. McCormack .....	Sept. 18, 1885..	25	23 65
Charlottetown .....	T. G. Taylor .....	Agent of Dept.		218 93
China Point .....	W. S. N. Crane.....		25	31 52
Clifton.....	J. Gunn.....	May 4, 1900..	25	10 78
Capaud & Victoria.....	E. McKinnon .....	July 7, 1897..	25	248 02
Georgetown.....	R. R. Jenkins.....	Oct. 14, 1892..	25	8 49
Haggerty's.....	C. Fisher.....	March 27, 1908..	25	7 20
Hickey's.....	M. Webster.....	Oct. 28, 1896..	25	28 80
Higgin's Shore.....	G. G. Henry .....			2 16
Hurd's Point .....	T. Montgomery.....	Aug. 16, 1901..	25	90 33



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For the Year ended March 31, 1911, Minor Public Works—Revenue—Wharfs, Piers and Harbours—*Concluded.*

Locality.	Wharfinger.	Date of Appointment.	Remuneration allowed.	Amount.
<i>Prince Edward Island.—Con.</i>			p. c.	\$ cts.
Kier's Shore .....	W. Hodgson .....	June 10, 1895..	25	86 50
Lambert & Stevens.....	W. S. Johnston.....	May 3, 1900..	25	8 77
Lewis Point .....	H. McCormack.....	Nov. 6, 1908..	25	15 06
Lower Montague.....	B. Aitken.....	Dec. 22, 1909..	25	3 41
Mount Stewart .....	B. Pigott.....	Jan. 17, 1910..	25	24 42
McPherson's Cove.....	J. L. McPherson.....	Nov. 6, 1906....	25	6 34
Murray Harbour North.....	B. Richards.....	Jan. 19, 1909....	25	6 32
North Cardigan.....	R. J. Steele.....	May 1, 1901....	25	39 83
Pownal .....	M. M. Haley.....	Oct. 13, 1896....	25	44 32
St. Mary's Bay.....	G. H. Hicken.....	June 11, 1910....	25	17 04
South Rustico.....	D. Gallant .....		25	9 60
Sturgeon Pier.....	N. Randall.....	Dec. 31, 1908....	25	27 33
Tignish.....	A. J. Gaudet.....	Aug. 23, 1898....	25	17 57
Vernon River, .....	W. M. Forbes.....	Apr. 22, 1902....	25	65 00
Wood Island.....	Jas. Young.....	Apr. 10, 1899....	25	1 49
<i>Manitoba.</i>				1,159 51
Selkirk. ....	E. Comber .....			570 03
<i>British Columbia.</i>				570 03
Comox, Harbour.....	G. H. Roe.....	Apr. 25, 1896....	\$200 per annum.	30 50
Ladysmith. ....	T. D. Conway.....		25	14 28
Nanaimo Harbour.....	Jas. Knarston.....	Oct. 26, 1905....	\$500 per annum.	95 00
Sidney Harbour.....	C. C. Cochrane .....	Nov. 25, 1910....	25	111 99
Vancouver Harbour.....	M. McLeod.....	Jan. 14, 1897....	\$600 per annum.	105 50
Victoria Harbour.....	C. E. Clarke .....	Nov. 3, 1894....	\$600 per annum.	45 00
				502 27
Recapitulation wharfage and harbour dues.				Revenue.
				\$ cts.
Ontario.....				5,806 84
Montreal District.....				889 38
Quebec District.....				3,403 49
New Brunswick.....				3,778 74
Nova Scotia.....				5,710 89
Prince Edward Island.....				1,159 51
Manitoba.....				570 03
British Columbia .....				502 27
Grand Total.....				21,821 15



STATEMENT of Sick Mariners' Dues collected during the fiscal year ended  
March 31, 1911.

Nome of Port.	Amount.	Name of Port.	Amount.
PROVINCE OF QUEBEC.	\$ cts.	PROVINCE OF NOVA SCOTIA—Con.	\$ cts.
Gaspé.....	111 66	Parrsboro.....	468 99
Montreal .....	5,310 85	Pictou .....	90 11
Paspebeac.....	243 08	Port Hawkesbury.....	145 35
Percé.....	47 33	Port Hood.....	41 73
Quebec.....	6,461 43	Shelburne.....	25 46
Rimouski.....	194 75	Sydney.....	1,980 79
St. John's.....	1,454 23	Weymouth..	202 60
Sorel.....	46 68	Windsor.....	958 64
Three Rivers .....	245 92	Yarmouth.....	416 57
Total.....	14,115 93	Total.....	15,551 83
PROVINCE OF NEW BRUNSWICK.		PROVINCE OF PRINCE EDWARD ISLAND.	
Bathurst.....	80 45	Charlottetown....	291 12
Campbelton..	286 76	Summerside.....	62 81
Chatham.....	894 08	Total.....	353 93
Dalhousie .....	450 83	PROVINCE OF BRITISH COLUMBIA.	
Fredericton.....	33 66	Nanaimo.....	5,113 07
Moncton.....	474 89	New Westminster:....	212 40
Newcastle .....	193 04	Prince Rupert.....	335 63
St. Andrews.....	50 94	Vancouver.....	1,860 53
St. John.....	7,123 64	Victoria .....	8,311 04
St. Stephens .....	40 15	Total... ..	15,832 67
Sackville.....	84 61	GRAND TOTALS BY PROVINCES.	
Total.....	9,713 05	Quebec.....	14,115 93
PROVINCE OF NOVA SCOTIA.		New Brunswick.....	9,713 95
Amherst .....	361 97	Nova Scotia.....	15,551 83
Annapolis.....	261 37	British Columbia.....	15,832 67
Arichat.....	11 32	Prince Edward Island...	353 93
Baddeck.....	50 44	Grand total... ..	55,567 41
Barrington.....	19 11		
Canso.....	61 85		
Digby.....	105 78		
Glace Bay.....	5 43		
Halifax.....	8,843 10		
Kentville.....	32 89		
Liverpool.....	72 67		
Lockeport .....	5 87		
Lunenburg.....	471 65		
North Sydney .....	938 14		



## SESSIONAL PAPER No. 21

STATEMENT of Steamboat Inspection Dues collected for the fiscal year ended March 31, 1911.

Name of Port.	Amount.	Name of Port.	Amount.
PROVINCE OF ONTARIO.	\$ cts.	PROVINCE OF BRITISH COLUMBIA.	\$ cts.
Sault Ste. Marie .....	45 68	Vancouver.....	576 72
Windsor.....	138 40	Victoria.....	262 86
	184 08		839 60
PROVINCE OF QUEBEC.			
Montreal.....	30 40	Ontario.....	184 08
Quebec .....	297 12	Quebec.....	327 52
	327 52	Nova Scotia.....	2,732 40
PROVINCE OF NOVA SCOTIA.		British Columbia.....	839 60
Halifax.....	2,222 88	Total .....	4,083 60
Kentville.....	419 12		
North Sydney..	92 40	Engineers' Certificates.....	1,501 50
	2,732 40	Grand total....	5,585 10

## MARINE Register Fees.

Name of Port.	Amount.	Name of Port.	Amount.
PROVINCE OF ONTARIO.	\$ cts.	PROVINCE OF BRITISH COLUMBIA.	\$ cts.
Ottawa.....	1 00	Victoria.....	3 04
Total.....	1 00	Total.....	3 04
PROVINCE OF QUEBEC.		PROVINCE OF P. E. ISLAND.	
Montreal.....	3 95	Charlottetown.....	1 20
Paspébiac .....	45	Total.....	1 20
Quebec.....	9 04		
Total.....	13 43	DISTRICT OF YUKON.	
PROVINCE OF NEW BRUNSWICK.		Dawson.....	50
St. John.....	1 88	Total.....	50
Total.....	1 88		
PROVINCE OF NOVA SCOTIA.		TOTALS BY PROVINCES.	
Arichat ...	20	Ontario.....	1 00
Halifax.....	2 80	Quebec .....	13 43
Liverpool.....	1 30	Newbrunswick.....	1 48
Lunenburg.....	3 20	Nova Scotia.....	8 14
Shelburne.....	44	Manitoba.....	40
Yarmouth.....	20	British Columbia .....	3 04
Total.....	8 14	Prince Edward Island.....	1 20
PROVINCE OF MANITOBA.		Yukon District.....	50
Winnipeg.....	40	Grand total.....	29 59
Total.....	40		



STATEMENT of Receipts from the Lighthouse and Coast Service of Canada for the fiscal year ended March 31, 1911.

Name of Port.	Amount.
PROVINCE OF NOVA SCOTIA.	\$ cts.
Halifax.....	613 00
Total .....	613 90

HARBOUR MASTERS.

TABLE showing the names of ports proclaimed under certain Dominion Acts, the provisions of which are found in the Canada Shipping Act, Chapter 113, Revised Statutes of Canada, 1906, for the appointment of harbour masters and date of their appointment, the amount which each of their salaries is not to exceed, the amount of fees collected by each of them during the calendar year ended December 31, 1910, and the overplus, if any, paid to the credit of the Receiver General.

PROVINCE OF ONTARIO.

Names of Ports.	Harbour Masters.	Date of appointment.	Amount collected.	Remuneration allowed.	Amount paid to Cr. R. G.
			\$ cts.	\$ cts.	\$ cts.
Amherstburg.....	M. Barrett .....	Dec. 29, 1906.	16 00	200 00	
Bronté.....	Jas. Wilson.....	Oct. 26, 1905.	2 00	200 00	
Byng Inlet, North.....	Chas. Begin.. . . .	Mar. 24, 1908.	4 00	200 00	
Collingwood.....	Wm. F. Toner .. . . .	Dec. 1, 1908.	114 00	300 00	
Depot Harbour.....	Jno. O'Grady.....	Apr. 18, 1910.	7 00	200 00	
Fort William. ....	Jas. McAllister.....	May 12, 1906.	339 50	600 00	
French River.....	E. Barron .....		17 00	200 00	
Goderich.....	Donald McKay .....	Apr. 21, 1908.	67 50	300 00	
Little Current. ....	John T. May... . . . .	July 19, 1906.	Nil.	200 00	
Meaford .....	S. McClain.....	July 18, 1902.	8 50	200 00	
Midland .....	John White .....	July 13, 1897.	57 50	300 00	
Owen Sound.....	W. T. Robertson.....	May 29, 1909.	159 50	200 09	
Oshawa....	Wm. T. Henry .....	Aug. 10, 1904.	Nil.	300 00	
Parry Sound.....	Basil Taylor. ....	April 27, 1909.	15 00	200 00	
Penetanguishene.....	Peter Light.. . . .	May 7, 1906.	20 50	200 00	
Port Arthur. ....	B. Guirard.. . . .	May 21, 1897.	217 50	300 00	
Port McNicoll. ....	Thomas Nothingham . . .	May 1, 1911.	Nil.	200 00	
Port Stanley.. . . .	P. E. Shepard. ....	Jan. 15, 1898.	Nil.	200 00	
Rondeau .....	W. R. Fellows.....	Dec. 17, 1888.	26 50	100 00	
Southampton.....	W. H. Johnston.....	Oct. — 1882.	39 50	100 00	
Sarnia.....	Albert McAdam.....	May 3, 1886.	Nil.	300 00	
Trenton....	Ross Cummings. . . . .	Mar. 21, 1911.	Nil.	200 00	

PROVINCE OF QUEBEC.

Amherst, M. I. ....	Jno. Cassidy.....	Sept. 2, 1878.	Nil.	200 00	
Anse aux Gascons.....	J. Mourant... . . . .	June 28, 1905.	Nil.	100 00	
Bersimis.....	L. Thibault.....	Dec. 13, 1905.	7 00	200 09	
Bonaventure .....	A. Bourque.....	June 5, 1905.	26 00	100 00	
Carleton .....	B. Leclerc.. . . .	May 15, 1905.	Nil.	200 00	
Cape Cove .....	J. Scott. ....	July 15, 1908.	Nil.	200 09	
Caplin.....	T. Bourdages.....	Mar. 20, 1907.	5 00	100 00	
Chicoutimi .....	A. Sturton .....	June 8, 1886.	Nil.	200 00	
Escoumains.....,	C. J. Bélanger, jr... . .	Oct. 27, 1906.		200 00	



## SESSIONAL PAPER No. 21

TABLE showing the names of ports proclaimed under certain Dominion Acts—*Con.*PROVINCE OF QUEBEC—*Continued.*

Names of Ports.	Harbour Masters.	Date of appointment.	Amount collected.		Remuneration allowed.		Amount paid to Cr. R. G.	
			\$	cts.	\$	cts.	\$	cts.
Grand Entry .....	André Cyr.....	July 10, 1907.	3	50	200	00		
Grand River .....	G. Beaudin.....	April 8, 1900.	6	00	100	00		
Gaspé.....	F. G. Eden.....	April 3, 1889.	Nil.		500	00		
House Harbour.....	C. Lafrance.....	Dec. 10, 1896.	32	00	200	00		
Maria .....	Arthur Cyr.....	Mar. 29, 1905.	Nil.		100	00		
Matane.....	L. J. Lavasseur.....	Dec. 12, 1896.	76	00	200	00		
Malbaie.....	Patric Lawrence.....	.....	15	00	200	00		
Metis.....	J. W. Ferguson.....	May 10, 1906.	Nil.		200	00		
New Carlislisle .....	J. Chisholme .....	April 22, 1902.	1	00	200	00		
New Richmond.....	F. X. Cormier.....	April 15, 1902.	23	00	200	00		
Nouvelle .....	J. Cassey.....	Jan. 3, 1903.	2	50	200	00		
Oak Bay .....	T. Harper .....	July 12, 1904.	30	00	200	00		
Paspebiac.....	W. L. Kempffer.....	Sept. 21, 1900.	29	50	150	00		
Percé .....	E. Donahue .....	Oct. 10, 1903.	7	50	100	00		
Port Daniel.....	B. Langlois.....	Feb. 26, 1907.	13	50	200	00		
Rimouski.....	A. P. S. Laurent.....	May 31, 1896.	106	50	200	00		
Rivière du Loup.....	F. E. Gilbert.....	Oct. 5, 1902.	30	00	100	00		
St. Godfrey.....	J. Grenier.....	June 5, 1905.	5	00	100	00		
Montmagny.....	L. Dionne.....	Oct. 22, 1896.	37	50	200	00		
St. Johns.....	G. H. Farrer.....	Mar. 20, 1897.	Nil.		600	00		
Sorel .....	J. A. Proulx.....	June 6, 1901.	500	00	400	00	100	00
Sault au Mouton.....	C. E. Nolet.....	April 11, 1907.	.....		200	00		
Trois Pistoies .....	E. T. Petitgrew.....	April 11, 1899.	Nil.		100	00		
Tadousac.....	A. Gingras.....	June 6, 1906.	Nil.		200	00		
Grand Manan .....	A. H. Cheney .....	.....	6	00	.....			

## PROVINCE OF NEW BRUNSWICK.

Alma.....	G. W. Parson.....	Mar. 2, 1898.	38	00	100	00		
Back Bay.....	Harry W. Harrer.....	.....	3	50	.....			
Bathurst.....	Capt. M. Daly.....	Apr. 15, 1907.	47	50	200	00		
Black's & Beaver Harbour	E. W. Cross.....	Sept. 17, 1883.	16	50	100	00		
Buctouche.....	H. Hutcheson.....	Apr. 17, 1897.	8	00	100	00		
Campbellton .....	G. E. Asker.....	.....	92	00	200	00		
Campobello.....	G. W. Lank.....	May 12, 1910.	5	00	100	00		
Cape Tormentine .....	M. S. Treene.....	May 13, 1901.	16	00	200	00		
Caraquet.....	G. A. Albert.....	Nov. 7, 1905.	6	00	150	00		
Chatham.....	A. J. Walls.....	July 13, 1898.	204	00	300	00		
Cocagne.....	J. T. Bourque.....	June 23, 1905.	Nil.		100	00		
Dalhousie.....	W. S. Smith.....	Mar. 19, 1888.	133	00	200	00		
Dorchester.....	Jas. Shea.....	Oct. 25, 1900.	72	00	200	00		
Fairhaven.....	A. Calder.....	July 30, 1901.	7	00	200	00		
Grand Harbour.....	T. Ingalls.....	Apr. 19, 1907.	6	50	100	00		
Gull Rock Channel.....	G. A. Johnson.....	Apr. 27, 1904.	Nil.		100	00		
Harvey.....	Wm. Wood.....	June 9, 1903.	41	00	100	00		
Heron Channel.....	D. Robertson.....	July 5, 1897.	25	00	200	00		
Hillsborough.....	J. O'Shaughnessy.....	Apr. 13, 1898.	34	91	150	00		
Hopewell Cape .....	J. H. Christopher.....	Apr. 13, 1898.	8	50	200	00		
Ledge of St. Stephen's...	Wm. McBean.....	June 12, 1894.	Nil.		100	00		
Letete .....	H. W. Harris.....	Feb. 16, 1906.	Nil.		100	00		
Little Shippegan.....	J. Beaudin.....	Oct. 27, 1906.	Nil.		100	00		
Moncton.....	B. Toombs.....	Apr. 12, 1905.	17	00	200	00		
Musquash.....	G. McNulty.....	Sept. 28, 1896.	Nil.		100	00		
Newcastle.....	J. Russell.....	June 27, 1904.	Nil.		300	00		
North Head.....	G. E. Gaskill.....	Mar. 20, 1907.	9	50	100	00		
Port Elgin & Baie Verte.	C. Trenholme.....	Apr. 30, 1907.	3	50	200	00		
Pokemouche.....	M. Landry.....	.....	Nil.		100	00		
Richibucto .....	Jas. A. Jardine .....	May 11, 1874.	28	00	200	00		
Sackville.....	E. Chase.....	May 11, 1904.	7	50	200	00		
Seal Cove.....	J. W. Wooster.....	Apr. 19, 1907.	10	00	100	00		
St. Andrews.....	Capt. R. Keay.....	Feb. 16, 1909.	29	00	100	00		
St. George.....	G. W. McKenzie.....	May 10, 1900.	33	50	100	00		
St. Stephen.....	Capt. A. McWhea.....	.....	33	00	.....			



TABLE showing the names of ports proclaimed under certain Dominion Acts—*Con.*  
PROVINCE OF NEW BRUNSWICK—*Continued.*

Names of Ports.	Harbour Masters.	Date of appointment.	Amount collected.	Remuneration allowed.	Amount paid to Cr. R. G.
			\$ cts.	\$ cts.	\$ cts.
St. Martin & Quaco...	J. R. McDonough.....	July 16, 1902.	61 50	100 00	
Shediac .....	Capt. J. Newman.....	Dec. 31, 1909.	39 00	300 00	
Shippegan.....	J. Degrace.....	Apr. 14, 1903.	13 50	100 00	
Tracadie .....	T. Savoy .....	Sept. 23, 1899.	9 00	100 00	
Waterside.....	H. T. Copp.....	Feb. 22, 1911.	Nil.	100 00	
West Isles.....	B. Simpson.....	May 27, 1901.	Nil.	200 00	
Whitehead .....	A. Cheney.....	Apr. 19, 1907.	Nil.	100 00	

PROVINCE OF NOVA SCOTIA.

Abbott's Harbour.....	F. D'Entremont.....	May, 23, 1901	2 00	200 00	
Advocate Harbour. ...	H. D. Barnes.....	Feb. 22, 1911	Nil.	100 00	
Amherst .....	F. A. Gates.....	April 3, 1907	6 00	300 00	
Annapolis.....	J. Lindgren.....	July 7, 1898	52 00	200 00	
Apple River.....	B. Atkinson.....	Feb. 1, 1909	30 50	200 00	
Arichat .....	J. Langlois.....	May 22, 1909	19 00	200 00	
Baddeck.....	P. L. McFarlane.....	Mar. 6, 1909	Nil.	200 00	
Barrington .....	B. Kenny.....	July 6, 1893	25 00	200 00	
Bayfield. ....	D. Sutton. ....	May 22, 1910	Nil.	200 00	
Bay St. Lawrence.....	J. W. Fitzgerald.....	Dec. 22, 1910	Nil.	200 00	
Bear River.....	Wm. McFadden.....	Sept. 27, 1897	20 00	100 00	
Beaver Harbour.....	H. Hawbott. ....	Sept. 22, 1888	2 00	100 00	
Big Harbour. ....	D. J. McKenzie .....	April 18, 1908	Nil.	100 00	
Bridgewater. ....	W. Oakes.....	Jan. 28, 1896	152 00	100 00	52 00
Big Bras d'Or. ....	John A. Bain .....	Feb. 7, 1910	Nil.	200 00	
Cape Canso.....	Geo. Oliver .....	Feb. 14, 1905	84 00	150 00	
Big P nd.....	Michael McIsaac.....	Mar. 8, 1906	...	200 00	
Cape Negro.....	A. D. Perry.. ..	...	9 50	200 00	
Chester.....	B. C. Corkum. ....	July 8, 1896	18 50	100 00	
Cheticamp.....	F. Aucoin.....	April 15, 1876	9 50	100 00	
Clarke's Harbour.....	J. G. Nickerson .....	...	66 00	200 00	
Clementsport.....	J. McCain. ....	Oct. 18, 1898	7 50	150 00	
Crow Harbour.....					
D'Escousse .....	M. Martell.....	April 22, 1902	8 50	100 00	
Digby.....	H. Anderson.....	June 19, 1902	47 00	200 00	
East Bay.....	Donald McInnis.....	April 5, 1884	...	100 00	
Fourchie .....	Enos Cann .....	May 25, 1910	...	100 00	
Freeport.....	L. Ring. ....	Mar. 20, 1909	11 50		
Gabarouse.....	Capt. G. Harris.....	Feb. 22, 1911	3 50	100 00	
Glasgow and Cape Breton Pier .....	A. McQuarrie.....	Oct. 30, 1880	26 00	300 00	16 50
Guysboro .....	A. M. Peart.....	Feb. 11, 1902	3 00	100 00	
Halifax.....	F. G. Rudolf .....	May 13, 1910	492 00	1,800 00	
Hantsport. ....	Wm. McCulloch.....	Jan. 17, 1892	Nil.	300 00	
Ingonish N. Bay.....	A. McLean.....	April 21, 1910	5 00	200 00	
Ingonish S. Bay.....	J. Doucette.....	April 30, 1901	2 50	100 00	
Ingram River.....	E. Huntly.....	Jan. 19, 1907	28 50	100 00	
Internat'l Pier, Sydney..	M. J. Neville.....	Oct. 30, 1880	316 50	300 00	16 50
Isaac's Harbour.....	F. D. Cook.....	June 19, 1900	21 50	100 00	
Jeddore .....	E. Baker .....	Dec. 3, 1903	16 50	100 00	
Jordan Bay.....	F. Thorburn.....	May 11, 1901	7 00	150 00	
Kelly Cove.....	J. Kenny.....	April 6, 1908	Nil.	100 00	
La Have .....	G. H. Zwicker.....	Feb. 25, 1875	40 00	300 00	
L'Ardoise, Upper and Lower .....	G. Burke .....	Aug. 29, 1884	4 50	100 00	
Lingan .....	Vacant .....				
Licomb .....	L. Wilson.....	Feb. 20, 1900	14 00	200 00	
Gillies Pt. East Little Bras d'Or.....	D. J. Campbell....	April 17, 1899	Nil.	100 00	
Little Bras d'Or Lake....	V. McLean.....	Sept. 23, 1907	Nil.	100 00	
Little Bras d'Or Harbour.	J. M. LeBlanc.....	Oct. 9, 1909	2 00	200 00	
Little Glace Bay.....	E. F. Rigby. ....	May 8, 1884	16 00	200 00	
Little Narrows.....	K. McLellan.....	Nov. 1, 1897	Nil.	100 00	
Liverpool.....	Capt. J. Ryan.....	Dec. 22, 1906	Nil.	200 00	



## SESSIONAL PAPER No. 21

TABLE showing the names of ports proclaimed under certain Dominion Acts—*Con.*PROVINCE OF NOVA SCOTIA—*Continued.*

Names of Ports.	Harbour Masters.	Date of appointment.	Amount collected.		Remuneration allowed.		Amount paid to Cr. R. G.	
			\$	cts.	\$	cts.	\$	cts.
Lockeport.....	G. J. Locke .....	April 2, 1906	Nil		100	00		
Louisburg.....	J. Townsend.....	May 1, 1899	299	50	150	00		
Lunenburg .....	J. Heckman.....	Oct. 1, 1909	173	50	150	00	23	50
Mabou.....	J. McInnes.....	July 11, 1900		50	100	00		
Mahone Bay.....	A. Hyson.....	Feb. 18, 1908	31	00	200	00		
McNair's Cove....	R. McEachern.....	Mar. 8, 1875	Nil.		150	00		
McKinnon's Harbour .....	D. T. McNeil.....	Oct. 9, 1909		5 00	200	00		
Marble Mountain.....	D. McDonald.....	July 26, 1892	10	00	200	00		
Margaretsville.....	Capt. J. McGranaghan.....	May 29, 1906	1	00	100	00		
St. Margaret's Bay.....	H. C. Garrison.....	Dec. 14, 1901	7	00	100	00		
Margaree.....	Fred. P. Chiasson.....	Mar. 6, 1909	1	00	100	00		
Marie Joseph.....	Chas. Dixon.....	Feb. 2, 1907	150	00	100	00		
Merigonish.....	T. B. Olding.....	Mar. 11, 1910	Nil.		200	00		
Meteghan Harbour.....	Capt J. McLair.....	Nov. 17, 1906	14	50	100	00		
Meteghan River.....	Luke A. Comeau.....	June 1, 1897			100	00		
Musquodoboit.....	Thos. Williams.....	May 31, 1905	4	00	100	00		
New Haven.....	Hector A. McLeod.....	Aug. 17, 1889			100	00		
Neil's Harbour .....	R. Payne.....	July 15, 1905	3	00	100	00		
Noel.....	S. O'Brien.....	Oct. 26, 1905	11	50	200	00		
Northport.....	J. Davis.....	Dec. 21, 1902	13	00	100	00		
North West Cove.....	P. Bouthier.....	June 30, 1902	Nil.		200	00		
Parrsboro.....	R. T. Smith.....	Apr. 30, 1892	95	50	300	00		
Petit de Grat.....	S. Boudrot.....	June 5, 1895	8	50	200	00		
Pictou Harbour.....	Harbour Commissioners.....				300	00		
Petite Rivière Bridge .....	J. N. Parks.....	Apr. 27, 1888	1	00	100	00		
Port George.....	Vacant.....							
Port Greville.....	D. Graham.....	Apr. 27, 1909	27	50	200	00		
Port Hawkesbury.....	J. Lamey.....	June 2, 1909	103	50	200	00		
Port Hastings.....	G. L. McLean.....	Feb. 15, 1908	101	00	200	00		
Port Hood.....	J. H. Murphy.....	July 9, 1875	3	50	200	00		
Port Latour.....	Wm. Shields.....	Feb. 18, 1898	19	00	200	00		
Port Lorne.....	F. Beardsley.....	June 9, 1907	1	00	200	00		
Port Maitland.....	J. Ellis.....	Dec. 10, 1896	6	00	200	00		
Port Morien.....	H. McDonald.....	Mar. 3, 1879	12	50	400	00		
Port Mulgrave .....	J. A. McDonald.....	June 29, 1908	8	50	200	00		
Port Medway.....	J. Hopkins.....	Feb. 13, 1903	13	00	200	00		
Port Wade .....	Capt. J. McWhinnie.....	Oct. 14, 1907	56	00	200	00		
Pubnico.....	D. Q. Amereau.....	Sept. 27, 1882	41	50	100	00		
Pugwash.....	G. M. Allen.....	May 15, 1907	35	50	100	00		
River Port.....	F. J. C. Creaser.....	Jan. 8, 1901	40	00	100	00		
River Bourgeois.....	E. E. Bouchie.....	Apr. 9, 1886	4	00	100	00		
River Hebert.....	W. T. Theal.....	July 24, 1905	117	00	100	00		
River John.....	H. Campbell.....	June 1, 1891	Nil.		100	00		
St. Ann's Bay.....	G. E. Fader.....	Sept. 21, 1906	19	00	200	00		
St. Mary's River .....	Robert Quinn.....	June 21, 1909	14	00	200	00		
St. Peter's Harbour .....	P. McNeil.....	Sept 17, 1883	91	00	200	00		
St. Ann's Harbour.....	A. McLeod.....	Apr. 16, 1909	15	00	200	00		
Sambro.....	B. Smith.....	May 27, 1890	13	50	200	00		
Sheet Harbour .....	H. Hall.....	Apr. 11, 1898	Nil.		200	00		
Shelburne.....	J. C. Morrison .....	May 4, 1897	136	50	200	00		
Ship Harbour.....	H. Siteman .....	Feb. 22, 1911	2	50	100	00		
Spencer's Island.....	B. McLellan.....	May 22, 1899	6	00	100	00		
Tangier.....	C. A. Hitchey.....	Nov. 14, 1901	4	50	200	00		
Tenny Cape.....	D. Longard.....	Oct. 26, 1905	Nil.		200	00		
Tatamagouche.....	Wm. Reilly.....	June 1, 1900	1	50	200	00		
Tidnish.....	R. B. Davidson.....	Feb. 19, 1910	2	00	100	00		
Tiverton.....	J. Blackford.....	Apr. 3, 1900	4	00	100	00		
Torbay.....	I. Forgere.....	Aug. 25, 1903	12	00	200	00		
Tusket.....	Cyrille Deucette.....	Nov. 21, 1902	9	00	100	00		
Tusket Wedge.....	Capt. H. A. LeBlanc .....	Mar. 3, 1911	34	50	100	00		
Victoria Pier, South Bar.....	Ernest Richardson.....	Nov. 1, 1897			200	00		
Wallace.....	J. D. Patton.....	Feb. 14, 1896	1	00	100	00		
West Arichat.....	Capt. L. Forest.....	May 25, 1910	Nil.		100	00		
Walton.....	B. McCulloch .....	Oct. 25, 1905	37	50	200	00		
West Bay.....	D. Forbes.....	Dec. 22, 1910	Nil.		100	00		
West Port.....	G. Welch.....	Jan. 29, 1898	21	50	200	00		
Weymouth.....	S. McCormack.....		66	00				



2 GEORGE V., A. 1912

TABLE showing the names of ports proclaimed under certain Dominion Acts—*Con.*

PROVINCE OF NOVA SCOTIA—*Concluded.*

Names of Ports.	Harbour Masters.	Date of appointment.	Amount collected.		Remuneration allowed.		Amount paid to Cr. R. G.	
			\$	cts.	\$	cts.	\$	cts.
Whitehead .....	L. Munroe.....	Feb. 8, 1909	33	00	200	00		
Whycocomagh.....	N. Matheson .....	July 6, 1909			100	00		
Wolfville.....	J. L. Franklin.....		6	50	100	00		
Wood's Harbour.....	J. Orechia .....	Feb. 19, 1892	22	50	200	00		
Yarmouth.....	Capt. G. L. Wetmore....	Jan. 24, 1911	203	00	250	00		
Windsor.....	Wm. McCulloch.....		193	50	300	00		
Washabuck.....	V. McLean .....							

PROVINCE OF PRINCE EDWARD ISLAND.

Alberton ... ..	J. Kinch.....	July 30, 1901	3	00	200	00		
Bay Fortune.....	J. A. Coffin.....	Apr. 29, 1875	Nil.		200	00		
Brudenell. ....	J. A. Gordon.....	Oct. 26, 1905	Nil.		200	00		
Cardigan River.....	F. Gallant. ....	Apr. 27, 1908	3	00	100	00		
Cove Head .....	M. Kielly.....	Apr. 23, 1904	Nil.		100	00		
Charlottetown and Hills- boro Harbour.....	J. White.....	May 6, 1909	114	00	400	00		
Crapaud.....	W. Myers.....	June 17, 1874	4	00	200	00		
Egmont Bay. ....	G. Henry.....	Dec. 5, 1906	30		200	00		
Georgetown.....	J. Westaway.....		19	50	200	00		
Malpeque.....	J. Champion.....	Dec. 10, 1896	1	00	200	00		
Miminegash.....	P. Doucette. ....	Jan. 21, 1908	3	00	100	00		
Montague Bridge.....	H. McPherson.....	May 5, 1904	5	00	200	00		
Murray Harbour.....	G. McLeod.....	Jan. 19, 1907	1	50	200	00		
Murray River .....	G. McLeod.....	Feb. 9, 1897	1	50	200	00		
New London.....	H. McLeod.....	July 6, 1910	3	00	200	00		
Pinette. ....	J. D. McDonald.....	Oct. 22, 1903	2	50	100	00		
Port Hill.....	W. C. Brown. ....	June 20, 1898	Nil.		200	00		
Pownal. ....	M. Haley.....	Mar. 30, 1897			100	00		
St. Peter's Bay .....	G. Barry.....	May 3, 1901	Nil.		200	00		
Souris E. & W.....	J. Tiernay .....	May 15, 1905	28	50	200	00		
Summerside.....	J. Matheson.....	Feb. 8, 1907	33	00	200	00		
Tracadie (Grand).....	J. McAulley.....	Apr. 18, 1910	Nil.		200	00		
Vernon River Bridge.....	J. Finlay.....	Oct. 9, 1884	2	00	200	00		
Wood Islands.....	J. Young.....	May 22, 1899	Nil.		100	00		

PROVINCE OF BRITISH COLUMBIA.

Chemainus .....	L. G. Hill.....		58	50	200	00		
Comox.....	G. H. Rowe.....		330	50	200	00	130	50
Ladysmith.....	W. Fraser.....	May 29, 1906	170	50	200	00		
Nanaimo and Departure Bay .....	J. Knartson.....	Oct. 26, 1905	595	00	500	00	95	00
New Westminster.....	W. B. Shiles.....	Feb. 15, 1908	163	50	400	00		
Snug Harbour....	G. C. Tunstall, jr. ....	Apr. 18, 1910	3	00	200	00		
Vancouver. ....	Capt. D. A. McInnes .....	June 22, 1909	705	50	600	00	105	50
Victoria & Esquimalt.....	C. E. Clarke.....	Nov. 3, 1894	645	00	600	00	45	00
Prince Rupert.....	T. H. Alicock. ....		21	00				



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RECAPITULATION.

Province.	Number of Ports.	Amount collected.	Amount paid to Cr. Rc. G'l.
		\$ cts.	\$ cts.
Ontario .....	22	1,111 50	
Quebec. ....	34	962 50	100 00
New Brunswick....	42	1,058 41	
Nova Scotia ....	125	3,689 00	92 00
Prince Edward Island..	24	224 80	
British Columbia.....	9	2,692 50	376 00
Totals.....	256	9,738 71	568 00



2 GEORGE V., A. 1912

UNITED STATES fishing vessels to which licenses were issued under the Act entitled 'An Act respecting Fishing Vessels of the United States of America,' during the fiscal year ended March 31, 1911.

Name of Vessel.	Port of Registry.	Tonnage.	Port of Issue.	Amount.
				\$ cts.
Harry A. Nickerson. ....	Gloucester, Mass.. ....	83	Lockeport. ....	124 50
Olga. ....	" .....	77	Shelburne. ....	115 50
Hector G. Wells. ....	" .....	66	" .....	99 00
Lottie E. Merchant. ....	" .....	79	Liverpool. ....	118 50
Gladiator. ....	" .....	75	Shelburne. ....	112 50
Ella N. Goodwin. ....	" .....	86	Sand Point. ....	129 00
Avalon. ....	" .....	97	Liverpool. ....	127 50
W. E. Morrissey. ....	" .....	93	Shelburne. ....	139 50
S. P. Willard. ....	" .....	87	" .....	130 50
Georgie Campbell. ....	" .....	78	" .....	117 00
Madonna. ....	" .....	79	" .....	118 50
Priscilla Smith. ....	" .....	89	" .....	135 50
Nooma. ....	" .....	77	Pubnico. ....	115 50
Hattie A. Heckman. ....	" .....	72	" .....	108 00
John R. Bradley. ....	" .....	80	Liverpool. ....	120 00
Lillian. ....	Boston, Mass. ....	95	" .....	142 50
Elector. ....	Gloucester. ....	84	Lockeport. ....	126 00
Mildred Robinson. ....	Boston. ....	86	Sand Point. ....	129 00
Preceptor. ....	Gloucester. ....	89	North Sydney. ....	133 50
Flirt. ....	" .....	82	Shelburne. ....	123 00
Blanche. ....	" .....	78	" .....	117 00
Nivanda. ....	" .....	76	Lockeport. ....	114 00
Richards. ....	" .....	90	Sand Point. ....	135 00
Arethusa. ....	" .....	107	North Sydney. ....	160 50
Thos. S. Porter. ....	" .....	92	Arichat. ....	138 00
Jas. W. Parker. ....	Boston. ....	96	Canso. ....	144 00
Lizzie M. Stanley. ....	Gloucester. ....	92	" .....	138 00
Mystery. ....	" .....	78	" .....	117 00
Esperanto. ....	" .....	91	" .....	136 50
Ingomar. ....	" .....	104	Halifax. ....	156 00
Onato. ....	" .....	105	Pt. Mulgrave. ....	157 50
Senator. ....	" .....	74	Pt. Hawkesbury. ....	111 00
Conqueror. ....	" .....	104	Sand Point. ....	156 00
Graling. ....	" .....	87	" .....	130 50
Raynah. ....	Boston. ....	95	Shelburne. ....	142 50
Ella M. Doughty. ....	Portland. ....	51	Lockeport. ....	76 50
Mary F. Curtis. ....	Gloucester. ....	85	Sand Point. ....	127 50
Corona. ....	" .....	82	Canso. ....	123 00
Ramona. ....	" .....	58	Liverpool. ....	87 00
Lizzie Maud. ....	Boston. ....	48	Yarmouth. ....	72 00
Thomas A. Cromwell. ....	" .....	89	Pubnico. ....	133 50
Margie Turner. ....	Portland. ....	44	" .....	66 00
Etta Mildred. ....	Gloucester. ....	45	" .....	67 50
Monitor. ....	" .....	100	Canso. ....	150 00
J. W. Bradley. ....	New Bedford. ....	45	Sand Point. ....	67 50
Romance. ....	Gloucester. ....	96	Canso. ....	144 00
Natalie J. Nelson. ....	Boston. ....	78	Pubnico. ....	117 00
Cavalier. ....	Gloucester. ....	96	Canso. ....	144 00
John Hays Hammond. ....	" .....	92	Pt. Mulgrave. ....	138 00
Margaret. ....	" .....	79	Canso. ....	118 50
Atlanta. ....	" .....	74	Pubnico. ....	111 00
Elsie. ....	Boston. ....	98	Barrington. ....	147 00
Kinco. ....	Gloucester. ....	83	Canso. ....	124 50
Corsair. ....	" .....	78	Pubnico. ....	117 00
Senator Saulsberry. ....	" .....	77	Yarmouth. ....	115 50
Titania. ....	" .....	77	Sand Point. ....	115 50
Howard. ....	" .....	76	Shelburne. ....	114 00
Manhassetts. ....	Boston. ....	79	Pubnico. ....	118 50
S. R. Lawson. ....	Gloucester. ....	85	" .....	127 50
Fannie A. Smith. ....	Gloucester, Mass. ....	87	House Harbour. ....	130 50
Colonel. ....	" .....	79	" .....	118 50
Jubilee. ....	" .....	61	Barrington. ....	91 50
Winnifred. ....	" .....	60	Pubnico. ....	90 00
Vanessa. ....	Boston. ....	84	Liverpool. ....	126 90
Mary A. Gleison. ....	Gloucester. ....	65	Pubnico. ....	97 50



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UNITED STATES fishing vessels to which licenses were issued, &c.—*Concluded.*

Name of Vessel.	Port of Registry.	Tonnage.	Port of Issue.	Amount.
				\$      cts.
Muriel.....	Boston.....	83	Tusket Wedge.....	124 50
Independence II.....	Gloucester.....	109	".....	163 50
Cythia.....	".....	102	Liverpool.....	147 00
Arabia.....	".....	86	".....	129 00
Arbutus.....	".....	86	Pt. Hawkesbury.....	129 00
Morning Star.....	Boston.....	85	Lockeport.....	127 50
Paragon.....	Gloucester.....	80	Arichat.....	120 00
Wm. H. Rider.....	".....	45	Sand Point.....	67 50
Townapowell.....	Boston.....	76	Yarmouth.....	114 00
Hope.....	".....	54	Sand Point.....	81 60
Lena & Maud.....	Gloucester.....	75	".....	112 50
T. M. Nicholson.....	Bucksport, Me.....	90	Louisburg.....	135 00
Governor Russell.....	Provincetown.....	129	Arichat.....	193 50
Mildred V. Newnan.....	Cape Porpoise.....	43	Liverpool.....	64 50
Virginia.....	Boston.....	73	Shelburne.....	109 50
Clintonia.....	Gloucester.....	105	Liverpool.....	157 50
Arcadia.....	".....	90	Sand Point.....	135 00
Maggie.....	".....	38	Souris.....	57 00
Almeida.....	".....	67	Lockeport.....	100 50
Pythean.....	".....	45	Lievrpool.....	67 50
Judique.....	".....	89	North Sydney.....	133 50
Claudia.....	".....	79	Sand Point.....	118 50
Lucunia.....	".....	104	Notrh Sydney.....	156 00
Catharine Burke.....	".....	92	Sand Point.....	138 00
Movanam.....	Duxbury.....	82	North Sydney.....	123 00
Effie M. Prior.....	Gloucester.....	97	Pt. Hawkesbury.....	145 50
Hattie L. Trask.....	Pubnico.....	48	Pubnico.....	72 00
Oliver F. Kilham.....	Beverly.....	43	Yarmouth.....	64 50
Elmer E. Grey.....	Boston.....	84	North Sydney.....	126 00
Slade Gorton.....	Gloucester.....	88	Sydney.....	132 00
W. Matheson.....	Budsport.....	171	Louisburg.....	108 00
Selma.....	Boston.....	87	Shelburne, (N.E.).....	130 50
Grace Darling.....	Beverly.....	47	Yarmouth.....	70 50
Geo. Parker.....	Gloucester.....	100	Canso.....	150 00
Teagar.....	".....	61	Shelburne.....	91 50
Oliver F. Kilham.....	Beverly.....	43	Yarmouth.....	64 50
Grace Darling.....	".....	47	".....	70 50
Smuggler.....	Gloucester.....	91	".....	136 50
Independence II.....	".....	109	Canso.....	163 50
Roosevelt.....	".....	90	North Sydney.....	135 00
Mystery.....	".....	78	Yarmouth.....	117 00
Paragon.....	".....	80	Halifax.....	120 00
Arkona.....	".....	97	Liverpool.....	145 50
Selma.....	Boston.....	88	Halifax.....	132 00
Alice R. Lawson.....	Gloucester.....	85	Yarmouth.....	127 50
Lucinda T. Rowell.....	".....	77	".....	115 50
Arcadia.....	".....	90	".....	135 00
Blanche.....	".....	78	Shelburne.....	117 50
Premier.....	".....	97	Yarmouth.....	145 50
J. J. Flaherty.....	".....	124	".....	186 00
Massachusetts.....	".....	102	".....	153 00
Hazel R. Hines.....	".....	79	".....	118 50
Senator Gardner.....	".....	94	".....	141 00
Georgia Campbell.....	".....	78	Shelburne.....	117 00
Bohemia.....	".....	86	Tusket.....	129 00
Mabel D. Hines.....	".....	92	".....	138 00
A. M. Parker.....	".....	100	".....	150 00
Senator.....	".....	75	Halifax.....	112 50
Lottie G. Merchant.....	".....	79	Tusket.....	118 50



APPENDIX

STATEMENT of expenditure by the Marine Department

	1868.	1869.	1870.	1871.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Maintenance of Lights—				
Above Montreal.....	40,561 28	42,306 69	46,289 05	44,054 01
Montreal District.....	23,053 56	25,762 54	21,669 49	22,453 52
Below Quebec.....	45,615 35	41,651 73	43,730 61	31,582 75
Nova Scotia.....	46,460 72	56,394 88	43,682 86	76,230 77
New Brunswick.....	20,488 00	23,893 00	27,485 14	20,542 29
Prince Edward Island.....				
British Columbia.....				
Construction—				
Above Montreal.....	3,136 15		2,976 83	8,770 55
Quebec.....	7,323 75	7,492 59	1,543 06	
Nova Scotia.....	22,041 42	6,905 80	18,967 23	10,948 31
New Brunswick.....			11,555 91	8,735 73
Prince Edward Island.....				
British Columbia.....				
Dominion steamers—				
Quebec.....	69,026 73	37,176 02	34,549 49	59,797 05
Nova Scotia.....	14,778 92	26,603 94	19,759 96	13,139 86
New Brunswick.....				
Prince Edward Island.....				
British Columbia.....				
Examination of masters and mates.....			908 12	1,407 66
Hudson Bay expedition.....				
Investigation into wrecks.....			140 00	
Marine Hospital, Quebec.....	19,977 36	19,221 45	21,618 73	19,823 18
Marine Hospitals.....	1,070 86	15,615 71	15,652 62	15,728 93
Meteorological service.....	8,200 00	8,950 00	8,950 00	9,370 82
Registration of Canadian shipping.....				
Removal of obstructions.....			2,350 07	1,000 00
Rewards for saving life.....				
Signal service.....				
Steamboat inspection.....	7,106 93	7,999 00	7,396 96	8,321 00
Survey, Georgian Bay.....				
Water police, Montreal.....	27,445 35	10,238 71	9,323 31	8,030 00
"    Quebec.....		12,633 59	9,038 62	9,379 73
Civil Government.....	15,083 88	18,064 25	19,401 05	20,220 96
Steam communication—				
Between Quebec and Maritime Provinces.....				
Between Prince Edward Island and mainland.....				
Purchase of steamers to replace—				
<i>Glendon</i> .....				
<i>Lady Head</i> .....				
Winter mail service, Prince Edward Island.....				
Tidal observations.....				
Gratuities.....				
Survey, Burrard Inlet.....				
Export cattle trade.....				
	371,070 56	360,899 90	36,212 91	389,537 12



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No. 7.

from Confederation to March 31, 1910.

1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
57,609 16	61,036 47	60,798 75	71,937 18	68,344 18	65,421 00	73,175 11	74,587 78	65,518 61
22,369 00	31,143 14	20,939 13	15,000 00	12,999 48	15,998 00	15,996 00	14,917 95	16,523 88
41,936 00	65,645 00	102,056 09	110,362 00	98,792 93	89,980 41	96,904 00	93,178 61	96,703 87
67,806 24	100,953 80	114,711 91	114,344 51	143,125 56	128,496 00	132,888 95	120,951 33	116,189 60
23,369 12	29,266 85	53,439 04	60,119 02	62,551 61	50,998 00	58,989 00	57,499 02	61,252 82
.....	.....	3,357 71	12,584 64	13,730 53	11,817 00	16,986 66	12,158 72	15,288 17
.....	13,207 09	18,519 50	15,983 72	17,175 97	15,853 00	18,948 78	15,152 73	15,576 99
6,940 45	18,999 38	24,461 86	14,286 65	13,320 40	16,267 98	7,207 96	11,993 75	13,297 81
57,818 35	39,303 87	41,950 82	19,325 00	24,336 47	12,945 29	12,776 47	4,154 58	7,797 75
34,760 12	90,181 79	51,867 94	43,898 63	42,214 55	25,550 00	13,500 00	17,386 97	7,069 01
9,561 14	16,691 06	31,572 60	8,842 97	17,819 85	7,083 82	12,028 13	22,598 14	4,985 53
.....	.....	.....	11,829 61	17,752 00	2,504 47	2,560 88	.....	6,074 50
.....	.....	4,353 93	8,799 07	8,477 67	29 66	.....	.....	.....
47,500 00	51,758 05	64,490 00	79,043 70	62,971 49	49,987 66	42,683 00	44,972 79	49,318 93
20,999 63	24,999 57	30,008 99	22 992 62	133,826 08	38,739 39	43,027 00	42,016 53	49,438 93
.....	.....	.....	.....	16,241 26	61,782 63	28,933 63	16,332 05	14,429 52
12,115 96	15,984 72	10,555 67	41,796 74	10,156 56	16,095 90	12,193 40	7,460 68	9,733 34
4,312 07	6,466 18	4,520 19	5,696 62	4,672 08	4,050 00	4,249 76	4,250 12	4,253 43
874 00	1,068 89	2,313 31	366 00	466 41	342 65	500 00	1,691 00	676 73
21,000 00	21,000 00	20,456 45	21,994 75	23,795 85	19,965 97	19,987 50	20,791 77	12,991 23
53,536 16	27,150 43	45,986 87	37,111 67	37,155 72	42,449 55	37,487 10	37,445 57	35,040 00
12,618 15	18,830 54	36,700 59	33,580 00	45,560 03	44,871 38	46,050 24	45,706 13	45,554 51
.....	.....	272 30	1,096 46	412 06	842 14	1,435 10	239 26	257 75
.....	.....	450 00	.....	203 00	462 00	305 86	825 00	825 00
2,284 32	1,975 13	4,931 78	3,552 86	2,292 20	1,958 55	4,071 00	2,533 10	2,263 15
.....	.....	1,000 00	.....	.....	.....	.....	.....	.....
8,500 00	13,266 00	10,291 68	12,200 00	13,081 86	13,073 01	13,228 38	13,076 46	11,854 34
10,000 00	14,453 87	12,370 86	13,395 00	14,090 00	13,524 29	14,062 00	13,462 74	13,131 08
10,348 00	18,200 00	26,526 66	24,500 00	27,136 68	21,482 08	23,498 06	23,023 26	22,094 48
22,644 52	25,336 04	30,087 23	31,328 16	32,789 18	32,304 12	32,682 05	36,610 19	35,033 95
.....	.....	15,000 00	10,000 00	10,000 00	.....	.....	.....	.....
.....	.....	.....	.....	766 00	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
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.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
518,958 49	706,817 92	845,150 90	844,586 09	970,146 27	820,054 38	786,156 23	755,359 47	723,390 89



STATEMENT of expenditure by the Marine Department

	1881.	1882.	1883.
	\$ cts.	\$ cts.	\$ cts.
Maintenance of Lights—			
Above Montreal.....	65,541 21	71,048 50	70,116 68
Montreal district.....	14,326 36	21,643 05	22,260 32
Below Quebec.....	89,781 29	91,098 66	102,784 99
Nova Scotia.....	128,918 59	137,846 15	150,793 17
New Brunswick.....	63,921 90	66,073 00	75,946 92
Prince Edward Island.....	12,997 36	16,985 72	17,907 27
British Columbia.....	17,570 72	17,803 00	18,349 06
Cape Race.....			
Construction—			
Above Montreal.....	14,180 02	13,581 00	9,782 27
Quebec.....	7,539 76	3,731 31	9,672 55
Nova Scotia.....	7,757 52	13,355 00	9,422 70
New Brunswick.....	4,578 52	2,253 80	1,022 57
Prince Edward Island.....	8,150 06	3,092 00	1,934 49
British Columbia.....	8,655 39	3,237 90	1,005 26
King's Printer.....			
Dominion Steamers—			
Quebec.....	64,973 00	44,923 98	45,156 13
Nova Scotia.....	36,700 00	31,049 74	37,841 07
New Brunswick.....			
Prince Edward Island.....	15,139 95	23,911 97	19,680 00
British Columbia.....	11,788 09	8,504 61	25,484 00
Department.....			
Examination of masters and mates.....	3,888 41	3,981 00	4,021 20
Hudson's Bay Expedition.....			
Investigation into wrecks.....	310 48	863 19	873 64
Marine hospital, Quebec.....	19,964 33	19,938 12	19,990 53
Marine hospitals.....	32,218 94	33,162 45	29,888 78
Meteorological service.....	46,163 54	47,464 07	51,990 25
Registration of Canadian shipping.....	607 43	2,013 28	168 84
Removal of obstruction.....	150 00	1,116 51	35 80
Reward for saving life.....	1,806 13	2,212 00	2,534 00
Signal service.....			3,365 33
Steamboat inspection.....	12,211 65	14,835 00	16,209 00
Hydrographic surveys.....			77 81
Water Police, Montreal.....	21,953 26	21,994 74	15,798 24
Water Police, Quebec.....	13,497 81	20,221 82	22,520 41
Civil Government.....	36,447 50	36,789 46	37,988 39
Steam communication—			
Between Quebec and Maritime Provinces.....			
Between Prince Edward Island and mainland.....			
Repairs to wharfs.....			
Purchase of steamers to replace—			
Stanley.....			399 55
Glendon.....			
Lady Head.....			
Winter mail service, Prince Edward Island.....			
Tidal observations.....			
Gratuities.....			
Survey, Burrard inlet.....			
Export cattle trade.....			
Survey, Bay of Quinté.....			
Relief of distressed Canadians.....			
Manning ships.....			
Widow of late A. Warren.....			
McDonald Bros.....			
Parliamentary returns.....			
Investigating effect of Chicago drainage canal.....			
John McDonald.....			
Longitude, Montreal.....			
Marine biological station.....			
	761,730 62	774,831 53	825,010 82



## SESSIONAL PAPER No. 21

from Confederation to March 31, 1910—*Continued.*

1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
70,788 27	70,697 89	85,713 98	75,690 74	85,588 70	72,721 23	84,035 65	93,180 72
22,946 43	23,262 94	33,289 28	16,735 49	17,510 17	12,285 79	118,750 70	122,741 89
101,302 35	118,856 94	131,095 29	131,540 80	108,278 67	112,690 20		
142,909 72	137,439 40	143,153 24	117,708 53	133,009 92	140,197 15	139,459 56	139,916 83
86,670 76	92,130 28	76,046 63	96,425 28	73,465 49	78,285 79	61,608 91	61,089 31
19,059 92	20,218 83	22,282 52	17,852 13	14,796 62	19,118 51	16,968 80	19,000 46
18,107 54	15,497 76	15,783 75	16,230 43	19,604 63	16,877 12	16,411 49	19,595 22
			4,453 25	5,124 20	7,358 01		
13,432 63	27,977 42	36,678 16	18,383 20	6,341 97	8,623 76		9,796 28
3,168 48	4,354 87	5,877 84	1,260 00	2,287 86	12,203 66		3,723 14
12,489 35	4,352 42	5,905 17	5,330 89	5,533 43	6,039 91		4,596 94
2,868 70	7,667 42	2,421 66	5,280 75	1,542 61	2,966 36	23,863 60	208 16
2,158 60	879 40		384 60				410 00
2,830 38	5,223 11	4,942 70	321 84	5,918 00	1,890 00		14,417 25
			26 58		40 14		
43,019 13	51,092 98	51,485 03	50,714 52				
27,726 60	42,921 27	30,283 27	32,287 10				
		24,633 26	14,337 23				
19,589 52	33,962 54	20,927 58	19,937 67	150,659 19	126,629 33	114,956 20	111,437 03
16,111 83	12,485 07	13,430 69	10,809 07				
			13,288 83				
5,580 79	6,656 44	5,239 28	4,858 98	5,063 96	4,381 04	4,177 83	4,255 24
480 69	71,374 69	35,217 10	14,762 61	165 00			
830 12	385 15	592 63	520 14	513 91	516 67	888 94	1,172 77
19,990 34	19,996 68	16,047 95	19,706 96	18,777 62	18,643 14	10,279 08	751 75
31,401 30	45,371 29	32,229 02	32,545 35	30,667 67	33,089 20	31,450 03	33,303 37
56,418 16	56,625 40	56,898 33	57,140 74	59,986 10	58,577 07	58,452 10	62,457 10
189 27	237 88	157 13	233 13	897 02	179 21	647 52	1,207 07
342 76	2,259 21	1,237 34	4,190 83	2,500 94	3,603 65	5,737 26	3,633 65
5,614 91	5,221 15	8,147 22	7,363 94	6,825 48	5,503 44	8,150 92	4,952 20
6,704 17	3,881 05	4,622 00	5,082 17	4,441 59	5,092 54	4,976 80	4,700 79
21,893 28	23,235 04	21,775 57	22,847 57	21,430 45	22,213 03	20,989 52	22,183 76
26,745 54	20,454 68	17,759 36	21,592 55	19,424 14	17,808 46	17,969 23	17,677 51
19,021 93	17,683 59	20,933 75	17,413 47	18,725 95	16,948 82	13,164 00	573 80
22,958 79	20,399 33	22,922 82	22,935 65	18,553 57	14,698 68	8,620 61	7,279 85
38,775 00	29,900 83	30,453 57	37,193 62	32,728 78	43,501 96	42,835 78	42,253 67
					133,505 60		
56,164 71	47,238 03						
		5,985 42	6,312 93				
				7,740 25	1,842 47	2,752 67	7,012 70
						244 75	1,888 71
					200 00	80 00	1,025 00
							1,690 12
							520 85
927 241 61	1,129,901 14	980,120 59	917,557 31	883,250 85	1,023,801 34	807,417 53	885,410 11



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## STATEMENT of expenditure by the Marine Department

	1892.	1893.	1894.	1895.	1896.	1897.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Maintenance of lights—						
Above Montreal.....	87,033 61	87,598 15	78,090 69	82,541 16	82,256 28	80,961 06
Montreal District.....						
Below Québec.....	116,531 27	120,404 19	124,348 80	124,763 81	124,143 66	126,186 00
Nova Scotia.....	148,815 26	150,445 26	137,339 73	140,977 53	123,234 65	124,671 19
New Brunswick.....	66,886 69	71,079 46	59,917 96	69,654 46	63,018 64	56,871 02
Prince Edward Island..	17,069 98	16,819 64	15,569 39	17,976 67	17,988 15	16,429 23
British Columbia.....	26,858 68	24,413 27	27,240 77	21,734 18	24,770 44	25,679 52
General account.....						
Construction—						
Above Montreal.....	21,704 05	8,766 62	12,581 15	2,699 40	11,993 84	9,527 94
Québec.....	809 27	10,097 18	4,743 13	3,004 14	3,300 30	296 26
Nova Scotia.....	1,965 16	4,381 24	3,104 77	4,737 03	1,842 94	61 71
New Brunswick.....	1,845 35	1,271 15	115 45	1,597 80	200 00	1 60
Prince Edward Island..	1 56	2,958 61	1,604 00			452 90
British Columbia.....	9,478 81		6,356 43	180 83	225 50	569 99
Lake St. Peter.....						
New Dredge.....						
Dominion Steamers—						
Québec.....						
Nova Scotia.....						
New Brunswick.....	145,899 61	163,097 46	178,183 97	169,661 64	145,315 28	136,940 11
Prince Edward Island..						
British Columbia.....						
Naval Schools.....						
Examinations of masters and mates.....	6,363 88	4,116 99	3,745 33	2,757 29	4,062 82	3,536 29
Hudson's Bay expedition..						19,091 32
Investigation into wrecks..	603 21	643 49	850 81	351 15	483 98	565 25
Lighthouse depot, Georgian Bay..						
Marine Hospitals.....	34,106 83	35,757 07	38,403 94	38,589 05	36,682 96	37,984 71
Meteorological service.....	67,138 06	64,165 60	66,440 96	64,588 34	66,600 29	67,397 71
Registration of Canadian shipping.....	462 59	1,476 19	394 00	207 40	517 60	531 55
Removal of obstructions...	2,878 68	1,554 53	202 02	2,217 36	456 38	631 86
Rewards for saving life....	6,398 93	7,432 64	8,014 67	6,591 34	8,004 38	5,955 19
Signal service.....	5,014 42	5,040 58	4,668 93	5,311 54	5,338 76	5,986 12
Steamboat inspection.....	22,736 59	24,386 95	25,961 36	26,385 88	26,321 27	26,837 83
Hydrographic surveys.....	16,451 10	17,542 11	31,461 76	12,653 28	15,099 63	12,352 99
Ship channel.....	6,161 60	5,436 23				
Civil Government.....	43,195 31	56,477 23	54,988 88	71,373 82		74,801 37
Repairs to wharfs.....		84 90	1,007 67	824 38	2,644 69	1,795 56
Purchase of steamer <i>Minto</i> .....						
Winter mail service, P.E.I.	3,309 44	4,376 96	6,497 03	6,138 18	7,779 69	21,931 05
Tidal observations.....	711 59	5,099 17	10,172 61	11,507 24	9,627 45	13,166 20
Gratuities.....			3,261 32			
Survey, Burrard Inlet....	2,580 45					
Export cattle trade.....	1,411 57	1,711 73	1,350 83	2,268 74	2,887 24	
Survey, Bay of Quinté....		2,085 45				
Relief of distressed Canadians.....				7 30		
Parliamentary returns.....					291 08	
Investigation effect Chicago grain canal.....					2,500 00	
John MacDonald.....					200 00	
Unforeseen expenses.....						
Marine biological station..						
New life-saving station, Long Point.....						
Salaries, temporary clerks..						
Steamer to replace <i>Bayfield</i>						
Observatory, Sulphur Mtn.						
Charles Morrison.....						
Montreal Pilotage Commissioners.....						
Montreal wireless telegraphy.....						



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from Confederation to March 31, 1910—Continued.

1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
87,841 22	92,751 23	82,810 92	93,708 16	92,195 52	117,896 37	154,194 26	244,960 38
116,279 88	136,134 79	122,112 42	132,147 88	154,839 06	148,302 34	170,554 10	273,865 74
126,336 00	65,072 35	122,414 86	142,359 01	149,572 14	142,725 69	164,339 92	204,157 27
67,369 98	128,674 15	52,491 93	65,247 80	69,133 51	73,410 65	79,464 50	121,289 44
18,112 93	20,569 81	42,878 40	28,031 85	24,223 73	25,575 33	25,603 09	36,760 32
26,862 03	29,530 20	33,545 95	31,938 25	35,119 03	35,758 43	39,068 34	55,976 59
				46 75			
6,867 69	3,729 62	7,094 64	12,499 99	158,714 09	399,487 73	540,675 07	1,447,202 77
3,649 90	37,838 80	40,319 03	17,060 13				
4,067 99	3,123 16	4,884 22	12,832 69				
1,423 34	91 49		266 34				
1,409 60	616 96	5,586 91	922 00				
6,414 19	19,305 60		4,160 74				
			660 03				93,938 90
							10,745 36
117,644 39	145,270 75	180,430 65	195,484 75	452,526 92	369,813 97	306,171 01	475,907 20
						6,106 54	3,123 24
3,335 40	3,568 26	3,750 69	3,730 25	3,305 59	4,968 36	7,761 17	5,884 74
27,050 66						178,638 94	236,469 00
312 77	982 17	773 06	1,022 65	1,824 55	1,367 45	3,570 28	5,111 34
							12,000 00
38,162 56	37,353 29	37,743 30	36,008 75	51,827 13	48,750 15	50,301 78	51,731 56
64,135 71	73,148 05	76,692 42	74,082 76	80,147 46	87,293 00	90,306 99	98,820 21
818 33	966 48	266 43	546 62	607 23	417 25	1,203 56	1,215 14
704 17	745 49	252 19	1,000 00	1,325 25	682 98	752 60	9,521 68
5,081 40	7,049 09	7,007 97	8,519 92	8,278 55	9,306 25	11,763 12	9,592 91
4,993 88	6,067 90	5,906 83	8,950 17	6,452 56	6,863 75	7,740 01	8,755 44
26,342 29	28,035 49	72,965 72	29,247 59	27,493 80	30,172 09	33,723 12	50,187 75
15,306 66	13,664 97	12,600 98	16,170 20	25,488 64	35,243 97	41,366 95	103,926 98
							511,171 41
74,644 05	72,833 97	63,331 61	68,776 95	70,246 32	84,442 53	91,985 07	102,735 31
1,618 97		697 87	1,261 06	2,824 28	1,721 91	1,300 89	1,599 61
	144,365 29	41,951 88					
9,575 31	8,439 70	1,503 70	2,093 93	8,835 86	6,211 28	8,912 57	10,984 74
3,081 45	5,186 35	4,372 18	7,060 20	8,925 33	14,520 00	21,871 71	23,802 24
				136 85	1,050 00	1,210 00	2,340 00
2,499 80	2,737 85	2,762 24	2,746 84	3,321 23	3,026 25	3,504 43	3,300 35
			133 32		95 10		269 20
			1,659 14				
		3,452 21	2,630 62	3,490 29	4,822 78	3,977 63	2,953 13
	5,709 10	739 61	1,990 58	1,998 85	2,000 00	2,996 54	2,001 69
				1,780 52			
				2,967 35	6,945 96	11,448 10	15,881 35
				50,000 00			
				55 00	3,167 62		
				223 00			
				3,691 69			
					1,745 23	2,050 00	10,776 51



STATEMENT of expenditure by the Marine Department

	1892.	1893.	1894.	1895.	1896.	1897.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Purchase land for wharf at Halifax, N.S.. . . . .						
Purchase land for wharf at Charlottetown, P.E.I. . . . .						
Schools for navigation. . . . .						
Naval Militia. . . . .						
Cattle inspection. . . . .						
Wrecking plant. . . . .						
Ice breaking steamers. . . . .						
S. Shaw . . . . .						
Salaries, light keepers. . . . .						
Agencies, rents, &c. . . . .						
Maintenance and repairs. . . . .						
Repairs to lighships. . . . .						
Construction and apparatus						
	861,426 80	898,720 03	905,654 34	895,828 28	793,634 49	867,772 90



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from Confederation to March 31, 1910— *Continued.*

1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
.....	.....	.....	.....	.....	3,528 25	18,847 31	40,785 10
.....	.....	.....	.....	.....	.....	15,119 11	.....
.....	.....	.....	.....	.....	.....	13,000 00	.....
.....	.....	.....	.....	.....	.....	5,036 29	.....
.....	.....	.....	.....	.....	.....	9,135 87	.....
.....	.....	.....	.....	.....	.....	3,335 52	.....
.....	.....	.....	.....	.....	.....	25,000 00	.....
.....	.....	.....	.....	.....	.....	164,414 93	.....
.....	.....	.....	.....	.....	.....	39 33	.....
.....	.....	.....	.....	.....	.....	242,403 64	.....
.....	.....	.....	.....	.....	.....	29,739 50	.....
.....	.....	.....	.....	.....	.....	531,920 43	.....
.....	.....	.....	.....	.....	.....	23,560 00	.....
.....	.....	.....	.....	.....	.....	1,605,718 59	.....
856,192 50	1,102,601 90	982,261 97	1,029,925 32	1,501,618 88	1,671,494 77	2,150,940 31	4,747,722 81



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STATEMENT of expenditure by Marine Department from Confederation to March 31,  
1910--*Continued.*

	1906.
	\$ cts.
Dominion steamers—	
Quebec . . . . .	587,885 89
Nova Scotia . . . . .	
New Brunswick . . . . .	
Prince Edward Island . . . . .	
British Columbia . . . . .	
Examination of masters and mates . . . . .	7,068 15
Hudson's Bay expedition . . . . .	132,707 52
Investigation into wrecks . . . . .	7,476 07
Marine hospital . . . . .	50,120 42
Meteorological service . . . . .	99,719 52
Registration of Canadian shipping . . . . .	1,800 00
Removal of obstructions . . . . .	4,967 15
Rewards for saving life . . . . .	11,991 43
Signal service . . . . .	8,194 39
Steamboat inspection . . . . .	37,590 22
Hydrographic surveys . . . . .	120,359 63
Ship channel . . . . .	587,975 51
Repairs to wharfs . . . . .	2,960 47
Winter mail service, Prince Edward Island . . . . .	16,680 58
Total observations . . . . .	28,047 27
Unforeseen expenses . . . . .	3,765 17
Marine biological station . . . . .	2,914 03
Salaries temporary clerks . . . . .	19,947 01
Purchase land for wharf at Halifax, N.S. . . . .	88,032 87
Schools for navigation . . . . .	5,636 29
Naval Militia . . . . .	9,135 87
Cattle inspection . . . . .	3,335 52
Wrecking plant . . . . .	25,000 00
Ice-breaking steamers . . . . .	161,414 93
S. Shaw . . . . .	39 23
Salaries lightkeepers . . . . .	242,403 64
Agencies rents, &c. . . . .	29,739 50
Maintenance and repairs . . . . .	531,920 43
Repairs to lightships . . . . .	33,560 00
Construction and apparatus . . . . .	1,605,778 59
Submarine signal apparatus . . . . .	50,547 60
Administration of pilotage . . . . .	12,066 42
Parry Sound Buoy Dept. . . . .	11,711 17
Compensation re explosion of gas buoys . . . . .	38,686 49
Water system, Partridge Island . . . . .	2,957 37
Observatory, Toronto . . . . .	2,872 96
" Montreal . . . . .	500 00
Hydrographic steamer, <i>Atlantic Coast</i> . . . . .	45,500 00
" " <i>Pacific Coast</i> . . . . .	370 01
New dredge No. 15 . . . . .	150,001 32
" <i>Galveston</i> . . . . .	159,847 89
Shipwrecked and distressed seamen . . . . .	598 81
Parliamentary returns . . . . .	483 11
Gratuities . . . . .	616 66
Civil Government, salaries . . . . .	88,453 31
" " contingencies . . . . .	19,606 45
	5,066,252 66



## SESSIONAL PAPER No. 21

STATEMENT of expenditure by Marine Department from Confederation to March 31,  
1910—*Continued.*

Services.	Amount.	Total 1907.
	\$ cts.	\$ cts.
Ocean and River—		
Dominion steamers.....	447,139 03	
Examination of masters and mates.....	5,934 16	
Rewards for saving life—life boats, &c.....	9,015 89	
Investigation into wrecks.....	8,662 16	
Schools for navigation.....	4,891 69	
Registration of Canadian shipping.....	1,506 53	
Removal of obstructions in navigable waters.....	7,377 20	
Tidal service.....	19,214 69	
Marine biological stations.....	11,998 01	
Cattle inspection.....	1,537 04	
Wrecking plant.....	2,143 80	
Wrecking plant ..	15,000 00	
Hudson's Bay experience.....	33,871 95	
" " patrol box.....	29,977 91	
Ice-breaking steamer, <i>Lady Grey</i> .....	6,293 51	
Quebec Coal Company's claim.....	1,000 00	
Arresting two sailors of the <i>Hector</i> .....	148 75	
H. M. Stewart, clothing destroyed by fire.....	171 00	
Unforeseen expenses.....	3,218 62	
		669,777 04
Lighthouse and coast—		
Salaries and allowances of lightkeeper.....	197,235 03	
Agencies, rents and contingencies.....	22,081 58	
Maintenance and repairs to lighthouse.....	499,707 86	
Contracts of lighthouse and apparatus.....	1,159,906 40	
Breaking ice in Thunder Bay.....	21,303 85	
Signal service.....	6,359 68	
Marconi stations.....	53,532 19	
Pilotage.....	21,490 73	
Repairs to wharfs.....	1,747 15	
Salaries, temporary clerks.....	14,477 16	
Georgian Bay and Parry Sound buoys.....	4,500 43	
		2,002,727 06
Scientific institutions and hydrographic surveys—		
Observatory, Toronto.....	2,313 67	
" Kingston.....	375 00	
" Montreal.....	375 00	
Meteorological service.....	75,163 20	
Hydrographic survey.....	84,435 32	
		161,662 19
Dredge No. 15.....		150,000 00
Cap à la Roche.....		1,347 87
Galveston.....		50,089 77
Shipman.....		419,598 19
Compensation to L. O'Brien.....		2,200 00
Marine hospital.....	37,362 11	
Shipwrecked and distressed seamen.....	703 56	
		38,156 67
Steamboat inspection.....		32,459 55
Returns for Parliament.....	634 76	
K. Falconer, reorganizing system of bookkeeping.....	35,000 00	
		25,634 36
Civil Government, salaries.....	68,395 81	
" " contingencies.....	14,182 31	
		83,178 12
Total, Marine Branch.....		3,637,599 87
" Fisheries.....		534,669 90
Fishing bounty.....		159,015 75
		4,331,255 47



2 GEORGE V., A. 1912

STATEMENT of expenditure by Marine Department from Confederation to March 31,  
1910—*Continued.*

	Amount.	Total, 1908.
	\$ cts.	\$ cts.
<i>Ocean and River Service—</i>		
Dominion steamers and ice-breakers.....	669,428 59	
Examination of masters and mates.....	11,508 31	
Rewards for saving life.....	31,642 41	
Investigations into wrecks.....	6,543 08	
Schools of navigation.....	7,378 07	
Registration of shipping.....	1,982 70	
Removal of obstructions.....	26,009 59	
Tidal service.....	30,077 40	
Winter mail service.....	11,019 79	
Cattle inspection.....	3,503 90	
Wrecking plants.....	30,000 00	
Unforeseen expenses.....	1,301 61	
Naval militia.....	9,078 17	
Patrolling waters in northern portion of Canada.....	34,796 49	
New ice-breaking steamer.....	5,974 61	
Returns to Parliament.....		
		881,054 56
<i>Public Works—Chargeable to Capital—</i>		
Ship channel.....	761,916 84	
Permanent piers in Lake St. Peter, &c.....	116,063 87	
Dredging, Cap à la Roche.....	75,000 00	
Dredge, <i>Beaujeu</i> .....	100,000 00	
Spur line, Sorel shipyard.....	8,815 05	
Montreal and Quebec Signal Service.....	12,232 15	
		1,074,027 91
<i>Lighthouse and Coast Service—</i>		
Agencies, rents and contingencies.....	29,359 26	
Salaries and allowance to lightkeepers.....	285,050 14	
Maintenance and repairs to lighthouses.....	689,319 86	
Parry Sound buoy depot.....	41,983 93	
Construction of lighthouses, &c.....	715,572 91	
Construction of apparatus.....	801,626 83	
Wireless stations.....	114,986 60	
Signal service.....	79,350 28	
Administration of pilotage.....	31,087 22	
Maintenance and repairs to wharfs, &c.....	1,456 86	
Maintenance and upkeep of dock yards.....	30,656 22	
Breaking ice, Lake Superior, &c.....	37,053 32	
Salaries of temporary clerks, &c.....	16,728 99	
Telephone reporting stations below Montreal.....	7,820 68	
Steamer for the Great Lakes.....		
Service of expert accountants.....	13,066 34	
Charter of steamer, Lime Kiln Crossing.....	6,650 00	
Keeping lights on 'Castle' and 'Arminia'.....	3,680 00	
		2,835,459 44
<i>Scientific Institutions and Hydrographic Surveys—</i>		
Meteorological service.....	122,572 86	
Magnetic observatory.....	2,918 20	
Montreal observatory.....	500 00	
Kingston observatory.....	500 00	
Hydrographic surveys.....	115,631 31	
Hydrographic survey steamer for B.C.....	107,250 00	
		340,373 37
Marine hospital.....	59,957 92	
Shipwrecked and distressed seamen.....	342 25	
Marine hospital at Yarmouth, N.S.....	7,285 00	
		67,585 17
Steamboat inspection.....	42,210 43	
		800,081 73
<i>Fisheries—</i>		
Civil Government Salaries, Marine and Fisheries.....	103,916 53	
Contingencies of Marine and Fisheries.....	21,146 77	
		125,063 30
Total expenditure Marine and Fisheries.....		6,174,855 91
1908 fishing bounty.....		156,114 50



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STATEMENT of expenditure for the year 1910—*Concluded.*

Service.	Vote.	Total, 1909. Expenditure.	Balance.
	\$ cts.	\$ cts.	\$ cts.
Scientific institutions and hydrographic surveys—			
Meteorological Service. ....	127,300 00	121,657 10	5,642 90
Magnetic observatory .....	3,200 00	1,674 79	1,525 21
Montreal observatory .....	500 00	500 00	.....
Kingston observatory .....	500 00	500 00	.....
Hydrographic surveys .....	170,000 00	120,239 77	49,760 23
Hydrographic survey steamer to replace <i>Da Canadienne</i> .	150,000 00	149,999 99	01
	451,500 00	394,571 65	56,928 35
Marine hospitals—			
Care of sick seamen and repairs to hospitals .....	70,000 00	63,709 16	6,290 84
Shipwrecked and distressed seamen .....	3,000 00	2,640 10	350 96
	73,000 00	66,349 26	6,650 74
Steamboat inspection .....	53,300 00	40,782 77	12,517 23
Fisheries—			
Salaries and disbursements of Fishery officers .....	195,750 00	173,271 52	22,508 48
Services of K. W. McKenzie as special guardian .....	125 00	125 00	.....
Fish breeding .....	322,300 00	180,345 65	141,954 35
Services of W. S. Young in 1908 .....	100 00	100 00	.....
Services of W. S. Young in 1909 .....	100 00	100 00	.....
Fisheries protection service .....	304,200 00	295,443 47	8,756 53
Oyster culture .....	6,000 00	4,234 48	1,765 52
Cold storage .....	40,000 00	14,504 98	25,495 02
Dog fish reduction works .....	50,000 00	33,593 20	16,406 80
Souris fish curing establishments .....	12,000 00	724 74	13,004 12
Proceeds of sale reverting to vote .....	1,728 86		
Canadian Fisheries exhibits .....	16,000 00	3,228 51	12,771 49
Distributing of fish bounty .....	5,000 00	5,045 56	54 44
Building fishways .....	10,000 00	3,992 26	6,007 75
Legal and incidental expenses .....	4,000 00	1,412 28	2,587 72
Georgian Bay laboratory .....	1,500 00	1,426 87	73 13
F. P. S. Cruiser for Pacific Coast .....	220,500 00	218,585 60	1,914 40
Marine biological stations .....	15,000 00	12,059 92	2,940 08
Transportation of fresh fish .....	45,000 00	38,263 16	6,736 84
Fishery commissions .....	15,000 00	6,733 74	8,266 26
International Fishery commission .....	10,000 00	1,094 67	8,905 33
Expenses, inquiries into Prov'l rights <i>re</i> fisheries .....	10,000 00	.....	10,000 00
Service of customs officers issuing licenses to United States Fishing vessels .....	700 00	528 22	171 78
Services of officers <i>re</i> Fisheries Intelligence bureau .....	500 00	370 26	129 74
	1,286,133 86	906,084 08	290,049 78
Recapitulation—			
Ocean and river service .....	1,035,000 00	803,921 09	231,078 91
Public works chargeable to capital .....	1,200,000 00	1,011,957 88	188,042 12
Lighthouse and coast service .....	2,372,172 74	2,127,943 61	244,229 13
Scientific institutions and hydrographic surveys .....	451,500 00	394,571 65	56,928 35
Marine hospitals .....	73,000 00	66,349 26	6,650 74
Steamboat inspection .....	53,300 00	40,782 77	12,517 23
Fisheries .....	1,286,133 86	996,048 08	290,049 78
Civil government salaries .....	236,390 00	220,611 23	15,778 77
Contingencies .....	27,000 00	26,633 36	366 64
	6,734,490 60	5,688,854 93	1,045,047 67

See expenditure for 1910-11 in Appendix No. 5.



APPENDIX No. 8.

METEOROLOGICAL SERVICE.

TORONTO, July 21, 1911.

SIR,—I have the honour to submit the fortieth annual report of the Meteorological Service, this report being for the fiscal year ended March 31, 1911, with appendices A and B, reports of the observatories at St. John, N.B. and Quebec.

The number of persons in receipt of pay from the Meteorological Service, for various duties performed in connection therewith has been 251. Of this number 25 have been employed in the central office and these together with a few at outside stations devote their whole time to the work of the service, others are occupied in observing during only a portion of each day and others again are employed only to attend to the display of storm signals when notified.

Since the issue of the last report the following stations have been opened:

BRITISH COLUMBIA.

Class II	Chilliwack.. . . .	J. H. Chapman.
	Canoe Point.. . . .	Harrison and Berry.
	Stewart.. . . .	W. H. Marston.
	Boswell.. . . .	R. T. Hickes.
III	Alkali Lake.. . . .	C. E. Johnson.
	Swift River dam.. . . .	John Likely.
	Bear Creek.. . . .	William McCallum.

ALBERTA.

Class II	Loveland.. . . .	Otto Richter.
	Blairmore.. . . .	R. W. Coulthard.
	Endiang.. . . .	H. Wehner.
	Wells Siding.. . . .	C. L. Bartlett.
	Tyrol.. . . .	J. A. McCartney.
III	Loch Sloy.. . . .	Hugh MacFarlane.
	Elkwater.. . . .	G. H. Sinibut.
	Brooks.. . . .	J. Wilde.
	Campsie.. . . .	W. Wallace.
	Tilley.. . . .	P. Marchin.
	Raymond.. . . .	
	Milk River.. . . .	
	Lyndon.. . . .	W. A. Lyndon.
	Caldwell.. . . .	Miss Polly Christiansen.
	Minda.. . . .	Sidney Hooper.
	Lineham.. . . .	Vine Bros.
	Maycroft.. . . .	A. C. Raper.
	Seven Persons.. . . .	H. H. Foster.
	Playle Creek.. . . .	A. H. Playle.

SASKATCHEWAN.

Class II	Big River.. . . .	J. C. McLeod.
	Larchmont.. . . .	Wm. S. Simpson.
	Rathmullen.. . . .	C. G. Annable.
	Strassburg.. . . .	E. S. Agnew.
	Oliver.. . . .	J. Saunderson.
	Heart's Hills.. . . .	K. R. Sterzer.
	Maple Creek (2).. . . .	E. G. Walker.
	Maple Creek.. . . .	Wilfrid Jones.
	Brownlee.. . . .	W. Macpherson.
	Kindersley.. . . .	J. J. Smithson.
	Rosthern.. . . .	Experimental Farm.
	File Hills.. . . .	Miss J. Cunningham.
	Stanley Mission.. . . .	Rev. James Brown.
III	Kelvinhurst.. . . .	Isaac Stirling.
	Battle Creek.. . . .	M. D. Maclean.
	Gull Lake.. . . .	T. F. Thompson.
	Carmichael.. . . .	W. R. Holding.
	Fort Walsh.. . . .	W. Anderson.
	Forks.. . . .	K. Sinclair.



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## KEEWATIN.

Class I The Pas.. . . . . Gideon Halcrow, Sr.  
 Split Lake.. . . . . Rev. C. G. Fox.

## MANITOBA.

Class II Aitkensville.. . . . . Wm. Aitken.  
 Ninga.. . . . . H. Cawley.  
 Dauphin.. . . . . A. Malcolm.

## ONTARIO.

Class I Cochrane.. . . . . W. McD. Douglas.  
 II Collingwood.. . . . . J. F. Metcalf.  
 Montreal River.. . . . . A. R. Webster.  
 St. Catharines.. . . . . J. Watson.  
 Porcupine.. . . . . C. M. White.

## QUEBEC.

Class II Shawbridge.. . . . . G. W. O. Mathews.  
 Chicoutimi.. . . . . H. B. Powell.  
 III Temiskaming.. . . . . Construction Staff.  
 Quinze Dam.. . . . . S. B. Hull.

## NOVA SCOTIA.

Class I Wolfville.. . . . . Prof. W. A. Coit.  
 II Antigonish.. . . . . A. G. Macdonald.

## PRINCE EDWARD ISLAND.

Class II Charlottetown.. . . . . Experimental Farm.

## NEWFOUNDLAND.

Class I Fogo.. . . . . A. Stone.

There are now in the Dominion, Newfoundland and Bermuda, 469 stations from which either daily, weekly or monthly meteorological reports are received. At the majority of these stations the observing is performed voluntarily and much of our knowledge of the climatology of Canada is due to the work of zealous observers who give their time and assistance to the cause of science without remuneration. The stations reporting by telegraph to the central office for the purposes of the weather map have during the year been increased by the addition of Triangle island, B.C., the Pas, Keewatin, Cochrane, Ont. and Fogo, Newfoundland and observing stations at Vancouver and Prince Rupert have been substituted for New Westminster and Fort Simpson. The storm signal display stations now number 99, including two new stations at Margaree harbour and Petite de Grat and at some seven other ports signal masts are in course of construction.

## INSPECTION OF STATIONS.

During the year many of the stations were inspected by officials from the central Ingonish, Neil's Harbour, Dingwall, Bay St. Lawrence, L'Ardoise, N.S., were necessary repairs, also certain localities visited to ascertain the necessity for the extension of the service in those districts.

Cranberry Head, Little Bras D'Or, New Campbellton, Breton Cove, North Ingonish, Neil's Harbour, Dingwall, Bay St. Lawrence, L'Ardoise, N.S., were inspected by Mr. B. C. Webber, this visit leading to the establishment of storm signal display stations at all of these ports. Mr. Webber also inspected Southampton, Grimsby, Stonecliffe, Renfrew, Prince Rupert, Victoria, Vancouver, Banff, Calgary, Edmonton, Battleford, Prince Albert, Swift Current, Qu'Appelle and Winnipeg.

The Pas, Keewatin and Cochrane, Ont., were opened as telegraph reporting stations, the equipment being installed and observers instructed by Mr. W. D. Allan, who also instructed the new observer at Medicine Hat, and inspected the stations at Sault Ste.



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Marie, Port Arthur, Fort William, Kenora, Winnipeg, Swan river, Dauphin, Pipestone, Virden, Brandon, White River, Englehart, Collingwood and Moosejaw.

The stations on the McKenzie river were inspected by Mr. W. E. W. Jackson, who visited Forts McMurray, Chipewyan, Smith, Resolution, Simpson, Norman, Good Hope, McPherson, Rae and Hay River.

Mr. F. O'Donnell inspected the stations at Oakville, South West Anticosti, Point Riche, Point Amour, Cape Norman, Belle Isle, Bird Rocks, Natashquan, Esquimaux Point, Cape Whittle, Magpie and Sheldrake.

Collingwood, Woodford, Owen Sound, Goderich, Bayfield, Stratford, Brantford, Paris, Burlington, Port Dover and Port Dalhousie were inspected by Mr. A. J. Connor.

Mr. E. Baynes Reed visited Yale, Lytton, Barkerville, Kamloops, Tranquille, and Spences Bridge and the new telegraph reporting station at Triangle island was equipped, and the observer instructed by Mr. F. Napier Denison.

Mr. D. L. Hutchinson visited Wolfville.

York Factory, Fort Churchill and Norway House were visited by Mr. Charles Savary while he was in the north and a report was made on the conditions of the stations.

In September the director attended a meeting of the International Meteorological Committee and of the International Committee of Research in terrestrial magnetism of which committees he is a member. Many questions relative to co-operation in meteorological work were discussed and arrangements were made for bringing into use a system of International storm signals.

#### THE CENTRAL OFFICE.

The new central meteorological office in Toronto is proving admirably adapted for the requirements of the service and the several branches of research work, now possible with the ample accommodation provided, can be carried on with every facility.

A strong effort is being made to bring the Annual Climatological Report more nearly up to date, the last issued is that for 1907, in two parts, containing 748 pages, the volume for 1908 is with the printer and the manuscript for 1909 is ready for the printer. The other publications of the service, including the daily Weather Map, the Monthly Weather Review and the Monthly Weather Map, have been issued with regularity and the annual report of the Toronto observatory, which was much in arrears, has been brought up to date.

With the ample library accommodation now provided, it has been possible to gather together and catalogue the reports of the many meteorological departments of the world and in future as publications are received they can be placed immediately on the proper shelf. A small amount of binding has been done this year, but it is intended during the coming year to try and get the valuable reports of all central offices of the various countries bound, and thereby increase their value for purposes of references.

The ordinary work of the service has continued without any break throughout the year. Forecasts to the number of 14,945 were issued from the central office to all the provinces between the Rocky mountains and the maritime provinces and to these 86.1 per cent were verified. (Table attached.) In the Pacific Coast division 4,823 forecasts were issued with a verification of 83.2 per cent; 1,690 storm warnings were issued to ports on the Great Lakes and along the Atlantic seaboard and of these 91.1 per cent was verified. Warnings and forecasts have been furnished to Newfoundland with the same regularity as to the Canadian provinces. The almost universal recognition of the value of weather forecasts to mariners, farmers, merchants and shippers of perishable goods, is very clearly indicated by a rapidly growing demand for their dissemination through country districts and along the coast line and it is now obvious that a scheme must be devised whereby the central office of all rural telephone lines shall receive a weather bulletin each day for transmission to subscribers.



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The stations organized in 1908 in the valley of the Mackenzie river are proving of much value and it is evident that the various agents are very capable observers. It is satisfactory that with these stations and those on the shores of the Hudson bay, it is now possible on most days to draw the isobars with fair accuracy to the most northerly confines of Canada.

## TIME SERVICE.

At Toronto during the year ending March 31, 1911, 57 observations for time were made in the meridian. The positions of the stars were as usual those given in the 'Berliner Jahrbuch.'

The exchanges of time between Toronto and the Observatories at Quebec, Montreal and St. John, have been carried on at intervals of about a fortnight. A table is appended giving the results obtained. All these exchanges have been registered on the chronograph. Time has also been sent weekly to the Magnetic Observatory at Agincourt and furnished daily to the city by striking the fire alarm bells at 11.55 a.m. Numerous daily inquiries for time over the telephone are made and answered. During the year a number of Surveyor's Sidereal watches have been adjusted and rated previous to and after their season's work.

The various instruments such as the transit instrument, sidereal and mean time clocks and equatorial telescope are now fully installed and in good working order, the clocks especially showing a great improvement in their running rates.

No important changes have been made in that portion of the Dominion time service which is under the control of the Meteorological Service. Signals continue to be automatically repeated from the land telegraph to the wireless at Camperdown, N.S., and many captains have vouched for the usefulness of the signals, which are picked up when the ships are still far from land.

The equatorial telescope has been chiefly used in obtaining maps of the Sun's surface. Some photographic work was tried during May and June, 1910, on Halley's comet and one or two very good pictures were obtained. The comet was first seen in the telescope on May 4, and a photograph taken of it in a small 5" x 4" camera attached to the tube of the telescope, an exposure of 15 minutes being given. Subsequently a larger lens of 3" aperture with a 6½" x 8½" plate was used and several good photographs were made after the comet had passed through perihelion and appeared in the western evening sky. Observations were made during the night of May 18, when the earth was supposed to pass through the tail of the comet. The night was beautiful and fine with the Moon shining brightly. A rather brilliant aurora occurred, streamers and an auroral arch were noticed at 10.13 p.m. and at 10.20 rapid pulsations and a certain formation moving and changing rapidly, the lower edges being of a deep colour. This condition lasted only a few minutes. At midnight there was still a glow in the north with occasional streamers. Nothing further occurred to indicate that the earth had passed through the comet's tail. During the period of visibility of the comet in May and the early part of June, a great many visitors were afforded an opportunity to view the comet through the 6" telescope. Arrangements have been made to photograph the Sun during periods of sun spot visibility and preliminary trials were made during the latter part of February and the first two weeks of March. The camera for this purpose is an oblong tapering light tight box, one end of which is made to receive an 8½" x 6½" plate holder, and into the other end is fitted a diverging lens sliding into a collar which is threaded so as to enable it to be screwed into the eye end of the equatorial telescope, thus taking the place of the ordinary telescopic eye piece. A yellow green glass light filter is placed in the camera between the shutter and the plate holder. The shutter is in a thin plate of aluminium 6 inches in length and 2½ inches wide, across the centre of which is cut a narrow slit. The shutter is driven with great rapidity, the slit passing through the cone of light from the Sun.



The shutter is placed immediately behind the diverging lens. The image of the Sun thus projected upon the sensitive plate is 135 millimeters in diameter.

Maps of the Sun's surface have been taken daily since September 2, whenever the state of the sky permitted. These maps are 120 millimeters in diameter. The position of the Sun's axis and equator, the north and south points as well as the spots and faculæ are marked thereon. Up to March 31, 1911, some 57 maps have been drawn and upon 19 days the sun has been observed free of spots.

On September 2, a very moderate sized spot on S.E. limb of the Sun, disappearing over the west limb on September 11. There were seen also three small spots near the western limit. On September 20, was observed a moderate sized spot with Penumbra on S.E. quadrant followed by one or two small spots at some distance apart.

On September 27, a very large group came over the S.E. limb and by October 1 had developed into a most beautiful spectacle extending longitudinally some 140,000 miles. The spot noticed on the 20th disappeared over the W. limb on October 2, rather increased in size. On October 17, a group appeared over the S.E. limb followed by a smaller group on the 18th, and another one about the 20th, these smaller groups gradually breaking up and finally disappearing by November 3. The Sun since has been remarkably free of spots, only on a very few occasions have any been seen and these were small. A very decided minimum period is apparently taking place.

The following table shows the difference between the times at Quebec, Montreal and St. John, at the various time exchanges, compared with that at Toronto. The sign + indicates that Toronto is slow of the other observatories.

Year.	Quebec.	Montreal.	St. John.
1910.	Seconds.	Seconds.	Seconds.
April 15.....	-0 33	+0 31	+0 22
" 29.....	+0 13	-1 62	+0 16
June 3.....	+5 69	+1 41	+0 86
" 24.....	-0 51	+0 71	+0 33
July 15.....	-0 71	+0 23	+0 35
August 12.....	-0 05	.....	+0 62
September 16.....	-0 21	+0 01	+0 38
" 30.....	-0 26	+1 12	+0 51
October 14.....	-0 91	-1 12	+0 40
November 25.....	-0 32	.....	+0 44
December 9.....	-0 64	+0 87	+0 57
" 30.....	-0 42	+0 58	+0 52
1911.			
January 13.....	+1 15	+1 83	+0 95
February 24.....	+0 09	+0 02	+0 18
March 10.....	+0 87	+0 99	+0 75
" 24.....	+0 66	+0 48	+0 61

On April 29, 1910, Toronto and Ottawa exchanged time, the difference being Ottawa 0.65 seconds fast of Toronto.

The latitude and longitude of the Toronto transit pier is:—

Latitude, 43° 40' 0.8" N.

Longitude, 5h. 17m. 35s. 60 W.

#### SEISMOLOGICAL OBSERVATIONS.

The Milne seismographs at Toronto and Victoria have been kept in operation throughout the year. Ninety-three disturbances being recorded by the former and 90 by the latter. The only really large disturbance was from an Alaskan quake on November 6, 1910, when the Victoria instrument recorded a swing of 17 m.m. and the



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Toronto instrument 4m.m. Moderate disturbances of unknown origin were recorded on May 13 and 31, and June 16, while the Turkestan quake of January 3 and the Italian quake of February 18 were clearly registered. To the present time seismology has not been organized as a subject for special research in connection with the meteorological service, and yet Mr. F. N. Denison, of Victoria, B.C., has for some years been carrying on investigations which now promise to yield valuable results. Twice each year tables giving details of all disturbances are forwarded to the secretary of the Seismological Committee of the British Association and to various other seismological bureaus in Europe and the United States.

## MAGNETIC OBSERVATORY.

There have been no breaks in the magnetic records at the Agincourt observatory. The zeros of instruments were determined by absolute observations, taken weekly for declination and bi-monthly for horizontal force. Weekly observations were also made for the determination of the inclination. The westerly declination has changed from  $6^{\circ} 2.6'$  in March, 1910, to  $6^{\circ} 7.1'$  in March, 1911, an increase of  $4.5'$ . The horizontal force has gradually decreased from 0.16274 C.G.S. units to 0.16232 and the inclination has increased from  $74^{\circ} 38'.6$  to  $74^{\circ} 39'.2$ .

Magnetic disturbances were of frequent occurrence throughout the year, but were small in amplitude. In declination the greatest variation was recorded on August 9 and 10, 1910, amounting to  $1^{\circ} 49'.1$ , the horizontal force at the same time passed beyond the range of the recording instrument. The second largest disturbance was also recorded in August on the 21st and 22nd, when the range of declination was  $1^{\circ} 18'.8$  and of horizontal force 532.5. The normal diurnal range for August in declination is about 15 minutes and horizontal force 45.

During the year 54 theodolites with magnets attached, belonging to surveyors employed by the Surveys Branch, Department of the Interior, were compared with the Agincourt Standard Declinometer and index corrections for the magnets were determined and supplied to the Surveyor General. Assistance was rendered to Messrs. Eangles, Carson, Chartrand and Cote of the surveys branch to make comparisons between their dip and total force instruments and our standards, in order to determine the constants of their instruments. Also to Messrs. French and Menzies of the Dominion Observatory, each of whom spent several days in standardizing and determining the various constants of their magnetometers and dip instruments both before and after their field work.

Instructions were given to Mr. Savary, of the Hydrographic Survey, and to Mr. Lavoie, who accompanied Capt. Bernier, on the manner of making magnetic observations and reducing them.

An officer of the meteorological service, Mr. W. E. W. Jackson, M.A., to whom was assigned the duty of inspecting the meteorological stations in the Mackenzie valley during the summer of 1910, was provided with a magnetometer with instructions to determine the magnetic values at various points when the opportunity offered. He took observations at Athabaska Landing, Grand Rapids, Fort McMurray, Fort McPherson, Fort Chipewyan, Fort Smith, Slave river, Fort Resolution, Hay river, Fort Simpson, Fort Providence, Fort Wrigby and Fort Good Hope, and the results obtained will be given in the next annual report.

## PHENOLOGICAL OBSERVATIONS.

In the various European countries the work of collecting and publishing phenological statistics is undertaken by the Meteorological Departments and the Canadian Service, which for some years past has also published statistics prepared by Mr. F. F. Payne, of the central office, Toronto, has undertaken to extend this work. It is hoped that it may be possible to enlist the services of the provincial boards of education as has been done in the province of Nova Scotia.



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The chief use of phenological statistics from a meteorological point of view is the graphic indication they give of the climate and the varying seasons. To those familiar with the dates of the flowering of common plants, &c., in their own district a mental picture of the climate of another district can much more readily be formed by comparing such dates than would be formed by consulting meteorological statistics.

Respectfully submitted,

R. F. STUPART,  
*Director.*

#### APPENDIX A.

METEOROLOGICAL SERVICE, ST. JOHN, OBSERVATORY,  
ST. JOHN, N.B., May, 1911.

R. F. STUPART, F.R.S.C.,  
Director, Meteorological Service,  
Toronto, Ont.

SIR,—I have the honour to present the annual report on the observatory at St. John, for the fiscal year ending March 31, 1911.

*Meteorological Service.*—The regular meteorological observations and records have been continued without interruption. No change has been made in the equipment or exposure of the instruments. The eye-reading as well as the automatic recording instruments which carry a continuous record of pressure, temperature, precipitation and direction and velocity of the wind have been maintained in most excellent condition.

*Weather Bulletins.*—The weather bulletin has been promptly issued every week day morning after receipt of the telegraphic messages from Toronto. The forecasts, synopsis and prevailing conditions at inland and coast stations is as has been in the past of inestimable value to mariners, shippers, contractors and various interests that largely depend upon the information contained therein. It is displayed in public places, distributed through the post and published by the evening press as heretofore. Through the courtesy of the New Brunswick Telephone Company, forecasts from Toronto are at six o'clock each morning telephoned to their numerous exchanges throughout this province and displayed on forms supplied by the meteorological service. At many of these places the forecasts would not otherwise be available. This most valuable and wide distribution of the forecasts is made gratuitously by the telephone company for the benefit of the public. Local and outside transportation companies, shipping and commercial houses make frequent requests for information from our records to assist in adjusting claims for demurrage, damage to perishable goods in transit, &c., in many cases the settlements wholly depend upon information from our observations and records. The press obtain much information during periods of extremes, important storms and other items of general interest to the public.

*Storm Signals.*—In addition to the hoist of storm signals at the signal station here, messages are telephoned to the display stations at St. Martins and Point Lepreaux upon receipt of the warning or safety message from Toronto.

*Time Service of the Maritime Provinces.*—Clock errors and rates have been determined by observation of standard stars almost every clear night, the observations and clock signals being recorded on the chronograph in the usual manner. The observations have mostly been made by the transit micrometer method, the instrument being furnished with a group of five fixed spider lines on each side of the centre of the field, the middle of the field is left clear for the transit or moving wire micrometer. When the selection of stars for a set would allow the necessary time interval between transits, both key and micrometer were used, the clock error then reduced



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from the double sett of from eight to twelve stars. The difference between results with key and micrometer indicate that I observe nearly three-tenths of second later with the key.

For the two minute interval ending at 10 a.m., time signals from this observatory continue to be sent over the Western Union Wires throughout these provinces. The mean time transmitting clock being connected through relay with the telegraph lines, automatically opens, sends the two minute signal and then closes the circuit.

At Camperdown, N.S., this signal is automatically repeated from the land line to wireless, and distributed to ships at sea within the zone of the Marconi station.

At other hours similar signals have been sent out by telegraph and telephone from the same clock, the beats of our clock relay being audible through long distance and local telephones.

The electric clock at Halifax has been daily sent a synchronizing signal at 10 a.m., when owing to wire trouble this signal did not go through, it has been repeated at following hours until satisfactorially received. Return signals from this clock in afternoon or evening seldom show an appreciable difference.

In Halifax watch and chronometer adjusters have sounders on their premises and wire connection with telegraph office to receive our 10 a.m. signal.

Excepting a few days last autumn when the apparatus at St. John was undergoing repairs the time balls at St. John and Halifax have been dropped each week-day at 1 p.m. of the 60th meridian.

*Clocks.*—The Riefler sidereal clock which is run under constant pressure and temperature continues to give most accurate results. While it was dismantled for cleaning last August, the Kullberg sidereal, (which is also mounted in the basement clockroom) was used as the standard.

Some additions have been made to the list of clocks which are hourly synchronized from our master clock in different parts of the city. The Bank of New Brunswick have installed an electric clock in the office of their new building at Fredericton which is synchronized every week-day morning. This is a growing and most useful service to the public.

I have the honour to be, sir,  
Your most obedient servant,

D. L. HUTCHINSON,  
*Director, St. John Observatory.*

## APPENDIX B.

QUEBEC, April, 18, 1911.

The Director, Meteorological Service,  
Toronto.

SIR,—I have the honour to transmit my annual report for the fiscal year ending March 31, 1911.

The usual meteorological observations were taken daily at this observatory and the bi-hourly temperatures continued at the Citadel; the instruments are in good order.

Inquiries by telephone respecting the weather conditions, &c., were very numerous, and statistics were often given to the newspapers and other persons.

The weather bulletin issued by the central office, Toronto, is very much appreciated by the public. It is posted every morning at the principal places of the city and published in all the newspapers.

Time observations were made nearly every fine night and also occasionally at noon. It was found that the transit instrument was much affected by frost during the cold



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season, probably because it is not on a solid base and that the wooden shed in which it is placed was not built on a stone foundation.

The time ball has been dropped in a very satisfactory manner during the whole navigation season.

As suggested in my last report, the position of the time gun was changed, but owing to complaints from residents near the Citadel it had to be removed to its former position.

I beg further to report that new water pipes were laid to the observatory during last spring and the building has now a good supply of water.

The whole respectfully submitted.

ARTHUR SMITH,  
*Director.*



Forecasts issued from the Central Office during fiscal year 1910-11.  
NUMBER ISSUED AND PERCENTAGE OF VERIFICATION.

Month.	ALBERTA.				SASKATCHEWAN.				MANITOBA.				LAKE SUPERIOR.				LOWER LAKES.				GEORGIAN BAY.				OTTAWA VALLEY.			
	Number fully.		Number partly.		Number issued.		Number fully.		Number partly.		Number issued.		Number fully.		Number partly.		Number issued.		Number fully.		Number partly.		Number issued.		Number fully.		Number partly.	
	Number Issued.	Percentage.	Number not.	Percentage.	Number issued.	Percentage.	Number issued.	Percentage.	Number not.	Percentage.	Number issued.	Percentage.	Number issued.	Percentage.	Number not.	Percentage.	Number issued.	Percentage.	Number not.	Percentage.	Number issued.	Percentage.	Number not.	Percentage.	Number issued.	Percentage.	Number not.	Percentage.
1910.																												
April.....	76	58	15	3 86.2	76	63	10	3 89.5	79	63	13	3 88.0	102	73	26	3 84.3	108	81	24	3 86.1	108	79	24	5 84.3	84	67	13	5 86.5
May.....	83	64	14	5 82.5	84	65	11	8 83.9	88	73	9	6 88.1	117	97	15	5 89.3	118	99	14	5 89.8	118	97	14	7 88.1	101	85	18	1 90.4
June.....	82	65	13	4 87.2	75	56	14	5 84.0	76	62	12	2 89.5	116	99	14	3 91.4	121	102	13	6 89.7	121	105	13	3 92.1	113	101	10	2 92.2
July.....	78	67	16	5 83.3	77	58	14	5 84.4	78	66	10	2 91.0	102	77	21	4 85.8	125	108	12	5 91.2	125	104	17	4 90.0	109	91	17	1 91.3
August.....	81	64	17	3 86.3	84	66	15	3 87.6	85	69	10	6 87.1	126	97	19	10 84.5	135	106	25	4 87.8	135	101	29	0 85.5	123	97	22	4 87.8
September...	77	64	8	5 88.3	77	59	15	3 86.4	77	60	14	3 87.0	120	92	21	7 85.4	132	106	20	6 87.9	132	104	24	4 87.9	117	97	17	3 90.1
October.....	77	54	18	5 81.8	78	62	13	3 87.8	78	63	11	2 90.4	113	83	25	5 84.5	127	97	23	7 85.4	127	99	23	5 87.0	109	79	24	6 85.5
November...	78	53	16	9 78.2	80	52	22	6 78.7	82	77	14	5 85.4	114	77	28	9 79.8	117	94	19	4 88.5	117	95	20	2 89.7	104	72	21	11 79.3
December...	79	63	14	2 88.6	83	64	18	1 88.0	86	67	16	3 87.2	99	73	24	5 84.3	121	92	24	5 88.0	115	82	27	6 83.0	105	73	26	6 81.9
1911.																												
January.....	77	57	17	3 85.1	80	60	17	3 85.6	78	58	14	6 83.3	87	71	15	1 90.2	104	84	16	1 88.5	104	85	19	0 90.9	96	68	21	7 84.8
February...	78	53	20	5 80.7	79	58	15	6 82.9	79	62	13	4 86.7	96	74	20	2 87.5	106	86	17	3 89.1	105	83	20	2 82.6	98	75	17	6 85.2
March.....	81	64	15	2 88.3	82	62	12	2 90.2	82	69	10	3 90.2	94	77	14	3 89.4	110	89	17	4 88.6	108	79	21	8 82.9	104	78	16	10 82.7
Totals	950	716	183	51 85.0	955	731	176	18 85.7	968	777	146	15 87.8	1286	990	239	57 863	1424	1144	224	56 88.2	1445	1113	251	51 87.5	1267	983	222	62 86.3



Forecasts issued from the Central Office during fiscal year 1910-11.  
NUMBER ISSUED AND PERCENTAGE OF VERIFICATION—Continued.

Month.	UPPER ST. LAWRENCE.			LOWER ST. LAWRENCE.			GULF.			MARITIME WEST.			MARITIME EAST.			TOTALS.															
	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.											
1910.	April . . . . .	85	65	14	6.84.7	107	79	19	9	82.7	108	88	18	2	89.8	108	80	22	6	84.3	107	82	20	5	85.0	1149	878	218	53	85.9	
	May . . . . .	106	85	20	1.89.6	107	88	12	7	87.8	110	85	21	4	86.8	110	84	21	5	85.9	1252	1003	189	60	87.6						
	June . . . . .	113	99	12	2.92.9	104	86	14	4	89.4	105	78	22	5	84.8	117	91	21	5	86.7	117	83	31	3	84.2	1260	1027	189	41	89.0	
	July . . . . .	109	92	15	2.91.3	116	90	23	3	87.5	116	85	29	2	85.8	122	89	24	9	82.9	122	87	26	9	81.9	1279	1004	224	51	87.2	
	August . . . . .	123	99	20	4.88.6	120	95	25	0	89.6	121	95	27	2	87.5	121	91	24	6	85.1	121	92	21	5	85.9	181	1072	257	52	85.9	
	September . . . . .	117	97	17	3.90.1	119	93	15	11	84.4	116	84	27	5	84.0	117	81	27	9	80.8	117	89	19	7	84.2	1318	1026	221	68	86.3	
	October . . . . .	109	80	23	6.83.9	126	91	21	14	80.5	126	88	29	14	69.4	117	84	23	10	81.1	116	78	29	9	79.7	1303	960	257	86	83.5	
	November . . . . .	104	77	22	5.84.6	105	74	23	8	81.4	105	72	28	5	81.9	113	71	30	9	78.8	107	69	29	9	77.6	1226	872	272	82	82.2	
	December . . . . .	105	77	21	4.80.5	102	80	17	5	86.8	102	85	14	3	90.2	126	85	26	15	77.8	128	91	21	12	81.2	1251	933	261	67	84.6	
	1911.	January . . . . .	95	71	19	5.84.7	42	77	11	5	89.7	99	83	15	1	91.4	121	98	13	10	86.4	120	93	18	9	85.0	1153	905	195	53	86.9
		February . . . . .	98	74	20	4.85.7	98	79	11	8	86.2	98	75	19	4	86.2	108	87	16	5	88.0	108	85	18	5	87.9	1151	891	206	54	86.4
		March . . . . .	104	82	14	8.85.6	107	83	16	8	85.2	108	86	16	6	87.0	121	95	20	6	86.8	121	92	21	8	84.7	1222	962	192	68	86.6
Totals . . . . .		1268	998	220	50.87.4	1303	1015	207	82	85.8	1314	1000	259	55	85.9	1401	1040	267	91	83.8	1391	1926	280	88	83.6	14945	11533	2674	738	86.1	



Forecasts issued by British Columbia Division, Victoria, during Fiscal Year 1910-11.

NUMBER ISSUED AND PERCENTAGE OF VERIFICATION,

Month.	VICTORIA AND VICINITY.					LOWER MAINLAND.					KAMLOOPS.					TOTALS.				
	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.
1910.	April.....	110	80	5	75.0	108	82	7	19	79.2	98	82	5	11	80.2	316	244	17	55	79.9
	May.....	116	89	6	79.3	115	95	3	17	83.9	107	91	1	15	85.5	338	275	10	53	82.2
	June.....	130	96	10	77.7	118	89	6	23	78.0	118	94	3	23	80.9	366	279	19	68	78.2
	July.....	139	125	5	91.7	135	116	7	12	88.5	129	118	1	10	91.9	403	359	13	31	90.7
	August.....	118	96	12	86.4	106	91	1	11	89.1	103	88	0	15	85.4	377	278	13	36	87.0
	September .....	105	80	8	80.0	101	81	3	11	81.6	91	80	0	11	87.9	297	241	11	42	84.2
	October.....	111	77	10	73.9	104	82	1	21	79.3	90	76	0	14	84.4	305	235	11	59	78.9
	November .....	107	79	8	78.5	93	81	4	8	89.3	87	69	1	17	79.9	287	229	13	45	82.1
	December.....	101	80	6	82.2	94	74	2	18	79.8	91	81	2	11	87.2	289	235	10	41	83.0
1911.	January.....	102	83	8	85.3	90	73	5	12	83.9	104	76	1	27	73.6	296	232	14	50	80.8
	February.....	101	72	5	73.8	88	71	1	16	81.3	86	69	2	15	81.4	275	212	8	55	78.5
	March.....	112	98	2	89.4	105	94	4	7	91.4	107	94	3	10	89.2	324	286	9	29	89.7
	Totals.....	1,352	1,055	85	81.2	1,257	1,035	44	178	84.1	1,214	1,018	19	177	84.2	3,823	3,108	148	567	83.2



APPENDIX No. 9.

MARINE HOSPITAL SERVICE.

OTTAWA, May 26, 1911.

SIR,—I have the honour to submit the annual report of the transactions in the Marine Hospitals' Service, for the fiscal year ended March 31, 1911.

I have the honour to be, sir,

Your obedient servant,

C. H. GODIN, M.D.

*Medical Superintendent Marine Hospitals' Service.*

A. JOHNSTON, Esq.,  
Deputy Minister of Marine and Fisheries,  
Ottawa.

ANNUAL REPORT OF THE MEDICAL SUPERINTENDENT OF MARINE HOSPITALS' SERVICE FOR THE FISCAL YEAR 1910-11.

Amount of appropriation.. . . .	\$70,000 00
Amount of expenditure.. . . .	54,859 50
Balance.. . . .	\$15,140 50

EXPENDITURE BY PROVINCES.

Province.	Number of Seamen.	Number of Days.	Total Expenditure.
			\$ cts.
Nova Scotia . . . . .	1,528	12,960	24,687 25
New Brunswick . . . . .	504	3,205	8,400 91
Prince Edward Island . . . . .	222	1,064	2,825 23
Quebec . . . . .	559	5,525	10,556 45
British Columbia . . . . .	421	3,330	7,669 67
General Account . . . . .			719 99
	3,234	26,084	54,859 50



SESSIONAL PAPER No. 21

TABLE showing expenditure for each Port.

*Nova Scotia.*

Port.	Number of seamen.	Number of days given.	Total expenditure.	
			\$	cts.
Advocate Harbour.....	8	45	202	25
Amherst.....	5	.....	48	30
Annapolis Royal.....	33	118	210	61
Apple River.....	4	35	187	00
Arichat.....	21	56	320	00
Baddeck.....	5	.....	46	50
Barrington.....	11	49	321	00
Barton.....	13	627	543	21
Bear River.....	8	58	219	85
Belliveau's Cove.....	1	14	5	00
Bridgetown.....	2	.....	12	30
Bridgewater.....	56	.....	326	41
Canning.....	6	.....	29	95
Canso.....	95	172	497	83
Chester.....	2	14	68	35
Cheticamp.....	22	13	294	00
Cheverie.....	2	.....	8	90
Church Point.....	1	14	8	50
Clark's Harbour.....	29	85	274	28
Clementsport.....	2	112	221	00
Digby.....	29	.....	300	00
Freeport, Westport and Tiverton.....	68	833	655	24
Glace Bay.....	10	11	166	50
Guysborough.....	1	.....	3	40
Halifax, Victoria General Hospital.....	1,172	4,589	6,947	00
Halifax Infirmary.....	1	35	52	50
City Board of Health.....	1	15	39	14
Hantsport.....	6	.....	32	25
Ingram Port.....	1	.....	5	00
Isaac's Harbour.....	6	.....	85	50
Jeddore.....	2	18	56	00
Kingsport.....	2	.....	13	75
La Have.....	4	.....	66	05
Liscomb.....	1	.....	85	00
Liverpool.....	7	214	207	00
Lockport.....	6	83	130	21
Louisburg.....	20	524	1,135	24
Lunenburg.....	37	936	1,333	70
Mabou.....	1	.....	5	00
Mahone Bay.....	25	59	375	45
Marble Mountain.....	2	.....	11	00
Margaree.....	1	.....	4	00
Meteghan.....	12	274	266	03
Musquodoboit.....	4	.....	56	50
North East Harbour.....	1	.....	50	00
Northport.....	13	.....	42	00
Parrsboro and West Bay.....	49	.....	399	00
Pictou.....	68	118	812	00
Port Clyde.....	1	.....	20	00
Port Dufferin.....	2	6	19	70
Port Greville.....	13	98	197	50
Port Hood.....	4	21	36	15
Ports Hawkesbury, Hastings, Mulgrave and Point Tupper.....	50	148	471	58
Port Latour.....	20	.....	125	00
Port Maitland.....	1	.....	5	50
Port Morien.....	10	.....	125	00
Port Wade.....	11	.....	112	00
Pubnico.....	17	17	317	00
North Sydney.....	254	.....	750	00
Pugwash.....	4	.....	7	50
River Hebert.....	5	.....	83	00
Salmon River.....	1	49	105	50
Sandy Cove.....	16	28	214	00
Springhill.....	5	274	249	70
Sherbrooke.....	3	.....	21	00
Shelburne.....	6	5	36	75



TABLE showing expenditure for each Port—*Continued.*  
*Nova Scotia—Continued.*

Port.	Number of seamen.	Number of days given.	Total expenditure.
			\$ cts.
Spry Bay.....	1	.....	30 00
St. Peters.....	37	.....	250 00
Sydney.....	74	1775	2,031 29
Tuskett Wedge.....	1	.....	4 50
Wallace.....	1	.....	3 25
Walton... ..	1	.....	25 00
Weymouth .....	6	58	165 60
Windsor... ..	27	108	203 75
Yarmouth.....	83	1,245	1,600 05
Totals.....	1,528	12,960	24,687 25

*New Brunswick.*

Alma.....	2	.....	26 00
Bathurst. ....	2	.....	150 00
Beaver Harbour.....	1	39	44 56
Buctouche.....	10	21	34 75
Campbellton.....	22	47	452 40
Cape Tormentine and Bay Verte..	7	.....	150 00
Caraquet.....	7	.....	44 50
Dalhousie .....	33	19	140 80
Dorchester.....	16	.....	99 80
Douglastown .....	48	399	2,151 96
Fredericton.. ..	1	.....	2 65
Grand Harbour. ....	9	256	515 50
Hillsboro & Hopewell Cape.....	92	.....	150 00
Moncton.....	23	161	325 65
North Head.....	3	.....	15 15
Quaco.....	3	.....	23 90
Richibucto.....	6	11	206 29
Riverside and Harvey... ..	8	.....	21 80
Shediac.....	16	.....	204 90
Shippegan.....	2	.....	3 25
St. Andrews.....	5	.....	29 00
St. Stephen.....	2	.....	9 00
St. John General Hospital.....	183	2,252	3,389 00
Wilson's Beach.....	2	.....	5 05
St. Martins .....	1	.....	5 00
St. John, N. B. Mission Society... ..	.....	.....	200 00
	504	3,205	8,400 91

*Prince Edward Island.*

Alberton .....	6	.....	11 45
Cardigan .....	3	.....	39 20
Charlottetown Hospital.....	26	348	522 00
P. E. I. Hospital ... ..	15	544	816 00
Crapaud... ..	3	7	17 25
French River .....	1	.....	19 75
Georgetown.....	12	.....	56 45
Montague. ....	8	.....	37 25
Murray Harbour.....	16	11	154 71
New London.....	1	.....	6 00
Rustico.....	1	.....	15 00
Souris.....	63	82	350 43
Summerside.....	54	.....	250 00
Tignish and Miminegash.....	12	8	167 85
Vernon River.....	1	64	361 89
	222	1,064	2,825 23



## SESSIONAL PAPER No. 21

TABLE showing expenditure for each Port—*Concluded.**Quebec.*

Port.	Number of seamen.	Number of days given.	Total expenditure
			\$ cts.
Batiscan.....	2		41 50
Bonaventure River.....	4		51 50
Fraserville.....	7	93	166 00
Gaspé.....	8		200 00
Grand River.....	1		5 50
Levis.....	1	54	81 00
Montreal, Alexandra Hospital.....	5	67	184 50
Notre-Dame Hospital.....	127	1,906	2,883 00
General Hospital.....	174	2,099	3,222 50
Matane.....	14	35	166 35
Magdalen Islands.....	5	4	79 50
New Richmond.....	2		24 50
Paspébiac and New Carlisle.....	8	50	162 50
Percé.....	1		2 00
Port Daniel.....	3		9 00
Quebec, Hotel-Dieu.....	17	92	138 00
Jeffery Hale.....	61	1,166	1,659 00
Rimouski.....	6		30 25
Seven Islands.....	1		16 00
Sorel.....	19		57 75
St. Johns.....	71	25	622 50
Three Rivers.....	22	4	353 60
Montreal Seamen's Institute.....			200 00
Catholic Sailors' Club.....			200 00
	559	5,535	10,556 45

*British Columbia.*

Cheminus.....	6	187	533 58
Ladysmith.....	5		12 00
Nanaimo.....	236	99	699 00
New Westminster.....	1	123	126 00
Port Simpson.....	2	18	19 25
Prince Rupert.....	1		3 00
Union Bay and Cumberland.....	32	54	486 48
Vancouver, St. Paul's Hospital.....	81	1,951	2,926 50
Strathcona Institute.....			200 00
Victoria, Marine Hospital.....	153	832	2,368 36
St. Joseph's Hospital.....	4	63	95 50
Victoria Seamen's Institute.....			200 00
	421	3,330	7,669 67

*General Account.*

	\$ cts.
Printing and stationery.....	277 91
Medical Supt's travelling expenses.....	439 60
Express and freight charges.....	2 48
	719 99



TABLE showing Expenditure for Treatment, Board, Supplies, &c.

	Nova Scotia	New Brunswick.	Prince Edward Island.	Quebec.	British Columbia.	General Account.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	cts.	\$ cts.
Board in hospitals and private houses.....	10,972 03	3,951 27	1,489 57	8,271 10	4,064 38	
Medical and surgical treatment.....	3,292 45	695 10	616 05	489 35	97 50	
Medical officers and keeper's salaries.....	7,806 99	2,225 00	700 00	1,275 00	2,533 33	
Fuel.....	859 00	36 00			448 40	
Drugs, instruments, etc....	286 54	42 30			66 32	
Burials.....	60 75	36 00				
Telephone.....	113 88	27 70			66 00	
Water.....	67 00				31 25	
Transportation.....	94 49	16 30		121 00		439 60
Repairs and maintenance..	640 53	1,034 30			10 50	
Special nursing.....	91 00	22 28	8 57			
Light.....					76 25	
Furniture, bedding, etc....	337 68	114 66	11 04		50 74	
Medical assistance.....	65 00				25 00	
Grants.....		200 00		400 00	400 00	
Printing and stationery....						277 91
Express and freight charges						2 48
	\$24,687 25	8,400 91	2,825 23	10,556 45	37 669 67	719 99

TABLE showing Amount of Salaries Paid to Medical Officers and Keepers During the Fiscal Year 1910-11.

Nova Scotia.	\$ cts.	Nova Scotia—Continued.	\$ cts.
Annapolis Royal—		Parrsboro and West Bay—	
Medical officer.....	\$160 00	Medical officer.....	300 00
Arichat—		Pictou—	
Medical officer.....	300 00	Medical officer.....	400 00
Barrington—		Keeper.....	200 00
Medical officer.....	300 00	Ports Hastings, Hawkesbury, Mulgrave and Point Tupper—	
Bear River—		Medical Officer.....	175 83
Medical officer.....	150 00	Keeper.....	72 00
Bridgewater—		Port Greville—	
Medical officer.....	29 16	Medical Officer.....	150 00
Canso—		Port Latour—	
Medical officer.....	375 00	Medical Officer.....	125 00
Clark's Harbour—		Port Morien—	
Medical officer.....	250 00	Medical Officer.....	125 00
Digby—		Sandy Cove—	
Medical officer.....	250 00	Medical Officer.....	200 00
Keeper.....	50 00	St. Peters, L'Ardoise and River Bourgeois—	
Freeport, Westport & Tiverton,—		Medical Officer.....	250 00
Medical officer.....	300 00	Sydney—	
Glace Bay—		Medical Officer.....	500 00
Medical officer.....	150 00	Keeper.....	300 00
Liverpool—		Weymouth—	
Medical officer.....	100 00	Medical Officer.....	125 00
Lockport—		Windsor—	
Medical officer.....	100 00	Medical Officer.....	120 00
Louisburg—		Yarmouth—	
Medical officer.....	250 00	Medical Officer.....	400 00
Keeper.....	300 00		
Lunenburg—			
Medical officer.....	400 00		
Keeper.....	150 00		
North Sydney—			
Medical officer.....	750 00		
			7,806 99







TABLE showing Expenditure for Treatment, comprising Doctors' Services, Doctors' Travelling Expenses, Drugs and Board—Continued.

Nova Scotia—Continued.

Ports.	Physicians' Services.	Doctors' Travelling Expenses.	Drugs.	Board.	Total Expendi- ture.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Halifax, Victoria Hospital .....				6,883 50	6,883 50
Halifax Infirmary.....				52 50	52 50
City Board Health.....				39 14	39 14
Hantsport.....	16 00		16 25		32 25
Ingram Port.....	4 00		1 00		5 00
Isaac's Harbour.....	55 00	18 00	12 50		85 50
Jeddore.....	1 00	9 00	1 00	45 00	56 00
Kingsport .....	11 00		2 75		13 75
La Have .....	45 00	17 00	4 05		65 05
Liseomb.....	9 00	63 00	4 00	9 00	85 00
Liverpool .....				107 00	107 00
Lockport .....				30 21	30 21
Louisburg .....				104 60	104 60
Lunenburg .....				468 00	468 00
Mabou .....	1 00	4 00			5 00
Mahone Bay .....	228 75	72 00	37 00	37 70	375 45
Marble Mountain.....	10 00		1 00		11 00
Margaree.....	2 00	1 00	1 00		4 00
Meteghan.....	108 50		53 50	104 06	266 06
Musquodoboit .....	8 00	39 50	9 00		56 50
North East Harbour.....	9 00	36 00	5 00		50 00
Northport.....	27 50		14 50		42 00
Pictou .....				69 00	69 00
Port Clyde.....	18 00		2 00		20 00
Port Dufferin.....	7 00		2 00	7 50	16 50
Port Greville.....				47 50	47 50
Port Hood.....	18 00		3 15	15 00	36 15
Port Hastings, Hawkesbury, Mulgrave and Point Tupper.. ..	20 00	13 00	11 50	87 00	131 50
Port Maitland.....	5 00		50		5 50
Port Wade.....	19 00	61 00	32 00		112 00
Pubnico .....	144 75	129 00	30 25	13 60	317 00
Pugwash .....	6 00		1 50		7 50
River Hebert.....	16 00	35 00	32 00		83 00
Salmon River.....	16 00	64 00	4 50	21 00	105 50
Sandy Cove.....				14 00	14 00
Springhill.....				246 60	246 60
Sherbrooke.....	11 00	2 50	7 50		21 00
Shelburne.....	6 50	4 00	1 00	6 25	17 75
Spry Bay.....	20 00		10 00		30 00
Sydney.....				772 00	772 00
Tuskett Wedge.....	3 00		1 50		4 50
Wallace .....	3 00		0 25		3 25
Walton.....	20 00		5 00		25 00
Weymouth.....				29 75	29 75
Windsor.....				83 75	83 75
Yarmouth.....				622 50	622 50
	1,609 50	1,018 50	664 45	10,972 03	14,264 68

New Brunswick

Alma.....	2 00	18 00	6 00		26 00
Beaver Harbour .....				22 28	22 28
Buctouche.....	16 00		8 25	10 50	34 75
Campbellton.....	58 00	5 50	3 75	23 50	90 75
Caraquet.....	26 50		18 00		44 50
Dorchester....	77 50		22 30		99 80
Douglastown....				199 50	199 50
Fredericton. ....	2 00		0 65		2 65
Grand Harbour.....	80 00	212 00	26 50	197 00	515 50



## SESSIONAL PAPER No. 21

TABLE showing Expenditure for Treatment, comprising Doctors' Services, Doctors' Travelling Expenses, Drugs and Board—*Continued.*

*New Brunswick—Continued.*

Ports.	Physicians' Services.	Physicians' Travelling Expenses.	Drugs.	Board.	Total Expenditure.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Moncton .....				98 40	98 40
North Head .....	5 00	7 00	315 00		15 50
Quaco .....	23 00		1 90		23 90
Richibucto .....				6 29	6 29
Riverside and Harvey .....	11 00	5 00	5 80		21 80
Shippegan .....	2 00	1 25			3 25
St. Andrews .....	21 00		8 00		29 00
St. Martins .....	5 00				5 00
St. Stephen .....	8 00		1 00		9 00
St. John General Hospital .....				3,378 00	3,378 00
Wilson's Beach .....	2 00		3 05		5 05
	338 00	247 50	109 60	3,951 27	4,646 37

*Prince Edward Island.*

Alberton .....	7 00		4 45		11 45
Cardigan .....	26 00	2 00	11 20		39 20
Charlottetown Hospital .....				522 00	522 00
P.E.I. Hospital .....				816 00	816 00
Crapaud .....	7 00	2 50	2 75	5 00	17 25
French River .....	8 00	10 00	1 75		19 75
Montague .....	25 00	4 00	8 25		37 25
Georgetown .....	33 00		23 45		56 45
Murray Harbour .....				4 71	4 71
New London .....	5 00		1 00		6 00
Rustico .....	13 50		1 50		15 00
Souris .....				41 86	41 86
Tignish and Miminegash .....	121 00		42 85	4 00	167 85
Vernon River .....	243 00		11 85	96 00	350 85
	288 50	18 50	109 05	1,489 57	2,105 62

*Quebec.*

Batiscan .....	24 00	12 00	5 50		41 50
Bonaventure River .....	38 00	8 50	5 00		51 50
Fraserville .....	63 75	3 00	6 25	93 00	166 00
Grand River .....	3 00			2 50	5 50
Levis .....				81 00	81 00
Montreal Alexandra Hospital .....				169 50	169 50
Notre Dame Hospital .....				2,859 00	2,859 05
General Hospital .....				3,148 50	3,148 00
Matane .....	41 00	37 00	34 85	53 50	166 35
Magdalen Islands .....	9 00	52 00	12 50	6 00	79 50
New Richmond .....	14 00		10 50		24 50
Paspebiac and New Carlisle .....				37 50	37 50
Perce .....	1 00		1 00		2 00
Port Daniel .....	4 50		4 50		9 00
Quebec Hotel Dieu .....				138 00	138 00
Jeffery Hale .....				1,659 00	1,659 00
Rimouski .....	9 00		13 25		22 25
Seven Islands .....	1 00	5 00	10 00		16 00
Sorel .....	32 00		25 75		57 75
St. Johns .....				22 50	22 50
Three Rivers .....				3 60	3 60
	240 25	117 50	131 60	8,271 10	8,760 45



TABLE showing Expenditure for Treatment, comprising Doctors' Services, Doctors' Travelling Expenses, Drugs and Board—Continued.

British Columbia.

Ports.	Physicians' Services.	Doctors' Travelling Expenses.	Drugs.	Board.	Total Expendi- ture.
	\$ cts.	\$ cts.	\$ cts.	\$ cts	\$ cts.
Chemainus .....				133 58	133 58
Ladysmith .. .....			12 00		12 00
Nanaimo.....				99 00	99 00
New Westminster.....				126 00	126 00
Port Simpson .....	6 00		50	12 75	19 25
Prince Rupert .....	2 00		1 00		3 00
Union Bay .....	45 00	21 00	10 00	77 15	153 15
Vancouver St. Paul's Hospital.....				2,926 50	2,926 50
Victoria Marine Hospital .....				593 90	593 90
Victoria St. Joseph's Hospital .....				95 50	95 50
	53 00	21 00	23 50	4,064 38	4,161 88

DETAILED EXPENDITURE FOR FUEL.

Nova Scotia—

Louisburg Marine Hospital.. .. .	\$263 64
Lunenburg Marine Hospital.. .. .	175 95
Pictou Marine Hospital.. .. .	19 00
Sydney Marine Hospital.. .. .	212 25
Yarmouth Marine Hospital.. .. .	188 16
	————— \$859 00

New Brunswick—

Douglastown Marine Hospital.. .. .	36 00
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British Columbia—

Victoria Marine Hospital.. .. .	248 40
	—————
Total expenditure for fuel.. .. .	\$1,143 40

DETAILED EXPENDITURE FOR WATER SUPPLY.

Nova Scotia—

Pictou Marine Hospital.. .. .	\$50 00
Sydney Marine Hospital.. .. .	17 00
	————— \$67 00

British Columbia—

Victoria Marine Hospital.. .. .	31 25
	—————
Total expenditure for water.. .. .	\$98 25

DETAILED EXPENDITURE FOR TELEPHONE SERVICE.

Nova Scotia—

Lunenburg Marine Hospital.. .. .	27 00
Sydney Marine Hospital.. .. .	51 88
Yarmouth Marine Hospital.. .. .	35 00
	————— \$113 88



## SESSIONAL PAPER No. 21

DETAILED EXPENDITURE FOR TELEPHONE SERVICE—*Continued*.*New Brunswick—*

Douglastown Marine Hospital.. . . . .	\$ 27 70
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*British Columbia—*

Victoria Marine Hospital.. . . . .	66 00
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Total expenditure for telephone.. . . . .	\$207 58
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## DETAILED EXPENDITURE FOR REPAIRS AND MAINTENANCE.

*Nova Scotia—*

Louisburg Marine Hospital.. . . . .	\$296 80
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Lunenburg Marine Hospital.. . . . .	81 55
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Pictou Marine Hospital.. . . . .	59 00
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Sydney Marine Hospital.. . . . .	65 18
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Yarmouth Marine Hospital.. . . . .	138 00
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	\$640 53
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*British Columbia—*

Victoria Marine Hospital.. . . . .	10 50
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*New Brunswick—*

Douglastown Marine Hospital.. . . . .	1,034 30
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Total expenditure.. . . . .	\$1,685 33
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## DETAILED EXPENDITURE FOR DRUGS, INSTRUMENTS AND OTHER SUPPLIES.

*Nova Scotia—*

Louisburg Marine Hospital.. . . . .	\$ 39 84
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Sydney Marine Hospital.. . . . .	72 44
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Yarmouth Marine Hospital.. . . . .	101 76
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Point Tupper Marine Hospital.. . . . .	72 50
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	\$286 54
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*New Brunswick—*

Douglastown Marine Hospital.. . . . .	42 30
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*British Columbia—*

Victoria Marine Hospital.. . . . .	66 32
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Total expenditure.. . . . .	\$395 16
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## GRANT TO SEAMEN'S SOCIETIES.

Montreal Sailors' Institute.. . . . .	\$ 200 00
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Montreal Catholic Sailors' Club.. . . . .	200 00
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St. John, N.B., Mission Society.. . . . .	200 00
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Victoria, B.C., Seamen's Institute.. . . . .	200 00
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Vancouver-Strathcona Institute.. . . . .	200 00
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Total grant.. . . . .	\$1,000 00
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## DETAILED EXPENDITURE FOR LIGHT.

*British Columbia—*

Victoria Marine Hospital.. . . . .	\$76 25
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DETAILED EXPENDITURE FOR LIGHT.

*Nova Scotia—*

Advocate Harbour.. . . .	\$ 7 25	
Apple River.. . . .	5 00	
Barton.. . . .	1 75	
Chester.. . . .	7 50	
Halifax.. . . .	47 50	
Louisburg.. . . .	1 95	
Lunenburg.. . . .	2 30	
Port Dufferin.. . . .	3 30	
Shelburne.. . . .	4 00	
Springhill.. . . .	3 10	
Weymouth.. . . .	10 85	
	—————	\$ 94 40

*New Brunswick—*

Campbellton.. . . .	\$ 9 15	
Moncton.. . . .	2 25	
Shediac.. . . .	4 90	
	—————	\$ 16 30

*Quebec—*

Alexandria Hospital, Montreal.. . . .	\$ 15 00	
Notre Dame Hospital, Montreal.. . . .	24 00	
General Hospital, Montreal.. . . .	74 00	
Rimouski.. . . .	8 00	
	—————	\$ 121 00

Medical superintendent's travelling expenses.. . . .	439 60	
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Total expenditure for transportation.. . . .	\$ 671 30	
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DETAILED EXPENDITURE FOR SPECIAL NURSING.

*Nova Scotia—*

Clementsport.. . . .	\$20 00	
Louisburg.. . . .	71 00	
	—————	\$ 91 00

*New Brunswick—*

Beaver Harbour.. . . .	22 28	
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*Prince Edward Island—*

Souris.. . . .	8 57	
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Total expenditure for nursing.. . . .	\$ 121 85	
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DETAILED EXPENDITURES FOR BURIALS.

*Nova Scotia—*

Canning.. . . .	\$10 00	
Halifax.. . . .	16 00	
Point Tupper.. . . .	19 75	
Shelburne.. . . .	15 00	
	—————	\$ 60 75

*New Brunswick—*

Moncton.. . . .	\$25 00	
St. John.. . . .	11 00	
	—————	36 00

Total expenditure for burials.. . . .	\$ 96 75	
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## SESSIONAL PAPER No. 21

## DETAILED EXPENDITURE FOR FURNITURE, BEDDING, ETC.

*Nova Scotia—*

Louisburg.. . . . .	\$ 153 41	
Lunenburg.. . . . .	29 10	
Sydney.. . . . .	40 54	
Yarmouth.. . . . .	114 63	
	<hr/>	\$ 337 68

*New Brunswick—*

Campbellton.. . . . .	\$ 2 50	
Douglastown.. . . . .	112 16	
	<hr/>	114 66

*Prince Edward Island—*

Vernon River.. . . . .	11 04	
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*British Columbia—*

Victoria Marine Hospital.. . . . .	50 74	
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Total expenditure.. . . . . \$ 514 12

## DETAILED EXPENDITURE FOR MEDICAL ASSISTANCE.

*Nova Scotia—*

Louisburg.. . . . .	\$50 00	
Pictou.. . . . .	15 00	
	<hr/>	\$ 65 00

*British Columbia—*

Victoria Marine Hospital.. . . . .	25 00	
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Total expenditure for medical assistance.. . . . \$ 90 00

## MISCELLANEOUS.

Printing and stationery.. . . . .	\$277 91	
Express and freight charges.. . . . .	2 48	
	<hr/>	
Total expenditure.. . . . .	\$280 39	

## TOTAL NUMBER OF VOUCHERS FOR EACH PROVINCE.

Nova Scotia.. . . . .	625
New Brunswick.. . . . .	134
Prince Edward Island.. . . . .	79
British Columbia.. . . . .	120
Quebec.. . . . .	89
General account.. . . . .	21



TABULAR STATEMENT showing diseases for which seamen received treatment during 1910-11.

General diseases, 809.

Measles.. . . . .	17
Scarlet fever.. . . . .	5
Influenza.. . . . .	110
Mumps.. . . . .	3
Dyptheria.. . . . .	2
Enteric fever.. . . . .	45
Choleric-diarrhoea.. . . . .	7
Dysentery.. . . . .	36
Beriberi.. . . . .	1
Malarial fever . . . . .	42
Erysipelas.. . . . .	18
Septicimia.. . . . .	66
Tyaemia.. . . . .	2
Tetanus.. . . . .	2
Tubercle . . . . .	35
Syphilis.. . . . .	51
Gonorrhoea.. . . . .	104
Scabies . . . . .	17
Toenia.. . . . .	2
Alcoholism.. . . . .	7
Rheumatism.. . . . .	176
Gout.. . . . .	1
Anemia.. . . . .	12
Diabetes mellitus.. . . . .	7
Congenital malformation.. . . . .	2
General debility.. . . . .	21
New growth, non-malignant.. . . . .	4
New growth, malignant.. . . . .	6
Effects of inorganic poison.. . . . .	3
Effects of heat.. . . . .	1
Cyst.. . . . .	2
Effects of the presence of foreign bodies.. . . . .	2

Local diseases, 1,875.

Diseases of the nervous system, 87.

1. Of the nerves—

Neuritis.. . . . .	8
Multiple neuritis.. . . . .	6

2. Of the spinal cord and membranes.—

Inflammation.. . . . .	2
Degeneration lateral column.. . . . .	1
Locomotor-ataxia.. . . . .	3

Of brain and membranes.—

Hemorrhage.. . . . .	1
Meningitis.. . . . .	3

4. Functional nervous diseases and other diseases of undetermined nature—

Apoplexy.. . . . .	2
Paralysis.. . . . .	6



SESSIONAL PAPER No. 21

TABULAR Statement showing diseases for which seamen received treatment during  
1910-11—*Continued.*

Diseases of the nervous system, 87—*Continued.*

4. Functional nervous diseases, &c.—*Continued.*

Epilepsy.. . . . .	6
Spasm.. . . . .	1
Vertigo.. . . . .	4
Headache.. . . . .	3
Neurasthenia.. . . . .	4
Neuralgia.. . . . .	35
Hysteria.. . . . .	2

Diseases of the eye, 64.

Conjunctivitis.. . . . .	30
Keratitis.. . . . .	3
Ulceration of cornea.. . . . .	3
Iritis.. . . . .	11
Blepharitis.. . . . .	3
Abscess of eyelid.. . . . .	2
Abscess of lacrymal sac.. . . . .	2
Ecchymosis of eyelid.. . . . .	6
Optic neuritis .. . . . .	1
Amblyopia.. . . . .	1
Squint.. . . . .	2

Diseases of the ear, 51.

Inflammation of external meatus.. . . . .	2
Cerumen.. . . . .	1
Inflammation of the middle ear.. . . . .	46
Abscess axilla.. . . . .	2

Diseases of the nose, 8.

Inflammation of septum.. . . . .	1
Necroiss of septum.. . . . .	1
Inflammation of sinuses.. . . . .	1
Inflammation of the naso-pharynx.. . . . .	5

Diseases of the circulatory system, 58.

Pericarditis.. . . . .	12
Endocarditis.. . . . .	9
Valvular diseases.. . . . .	13
Aneurism of the heart.. . . . .	1
Angina-pectoris.. . . . .	3
Syncope.. . . . .	1
Arteritis.. . . . .	4
Aneurism of arteries.. . . . .	5
Thrombosis.. . . . .	2
Phlebitis.. . . . .	2
Varix.. . . . .	6



TABULAR STATEMENT showing diseases for which seamen received treatment during  
1910-11—*Continued.*

Diseases of the respiratory system, 428.

Laryngitis.. . . . .	32
Bronchitis.. . . . .	227
Spasmodic asthma.. . . . .	29
Congestion of lungs.. . . . .	5
Hemorrhage of lungs.... . . . .	5
Pneumonia.. . . . .	42
Broncho-pneumonia.. . . . .	6
Abscess of lung.. . . . .	4
Thpisis.. . . . .	32
Pleurisy.. . . . .	44
Oedema of lungs.. . . . .	2

Diseases of the digestive system, 576.

Inflammation of the lips.. . . . .	2
Inflammation of the mouth.. . . . .	3
Abscess of dental periosteum.. . . . .	12
Toothache.. . . . .	42
Necrosis alveoli.. . . . .	7
Sore throat.. . . . .	10
Inflammation of tonsils.. . . . .	46
Post-pharyngeal abscess.. . . . .	3
Inflammation of the stomach.. . . . .	61
Ulceration of the stomach.. . . . .	8
Hemorrhage of the stomach.. . . . .	2
Indigestion.. . . . .	68
Gastralagia.... . . . .	2
Anorexia.. . . . .	2
Inflammation of the intestines.. . . . .	19
Typhlitis.. . . . .	6
Colitis.. . . . .	11
Appendicitis.. . . . .	24
Duodenitis.. . . . .	1
Intestinal obstruction.. . . . .	5
Constipation.. . . . .	22
Diarrhoea.. . . . .	55
Fistula in ano.. . . . .	6
Prolapsus of rectum.. . . . .	1
Ulcer of rectum.. . . . .	2
Piles.. . . . .	28
Inflammation of the liver.. . . . .	17
Jaundice.. . . . .	8
Cancer of the liver.. . . . .	2
Calculi.. . . . .	2
Biliary colic.. . . . .	2
Hernia.. . . . .	32
Inflammation of the biliary ducts.. . . . .	7
Peritonitis.. . . . .	3
Dyspepsia.. . . . .	53
Dropsy.. . . . .	2



## SESSIONAL PAPER No. 21

TABULAR STATEMENT showing diseases for which seamen received treatment during  
1910-11—*Continued.*

## Diseases of the lymphatic system, 44.

Adenitis.. . . . .	41
Goitre.. . . . .	3

## Diseases of the urinary system, 82.

Nephritis.. . . . .	20
Bright's disease.. . . . .	18
Calculi of kidney.. . . . .	2
Abscess perinephritis.. . . . .	1
Calculi in ureter.. . . . .	1
Haemapuria.. . . . .	1
Albuminnuria.. . . . .	2
Lithuria.. . . . .	1
Phosphaturia.. . . . .	1
Pyelitis.. . . . .	3
Cystitis.. . . . .	32

## Diseases of the generative system, 121.

Urethritis.. . . . .	15
Stricture.. . . . .	16
Inflammation of the prostate.. . . . .	5
Phimosi.. . . . .	4
Paraphimosis.. . . . .	2
Inflammation of the glands.. . . . .	6
Soft chancres.. . . . .	20
Orchitis.. . . . .	31
Inflammation of the spermatic cord.. . . . .	7
Varicocele.. . . . .	10
Epididymitis.. . . . .	4
Spermatorrhea.. . . . .	1

## Diseases of the organs of locomotion, 101.

## Inflammation of the bones—

Osteitis.. . . . .	3
Periostitis.. . . . .	4
Caries.. . . . .	2
Inflammation of the joints.. . . . .	9
Dislocation of ankle.. . . . .	1
Dislocation of spine.. . . . .	1
Necrosis.. . . . .	5

## Myalgia—

Lumbago.. . . . .	57
Sciatica.. . . . .	15
Bursitis.. . . . .	4

## Diseases of the connective tissues, 83.

Cellulitis.. . . . .	21
Abscesses.. . . . .	58
Gangrene.. . . . .	3
Oedema.. . . . .	1



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TABULAR STATEMENT showing diseases for which seamen received treatment during  
1910-11—*Continued.*

Diseases of the skin, 171.

Erythema.. . . .	6
Pityriasis rosea.. . . .	1
Urticaria.. . . .	5
Eczema.. . . .	40
Impetigo.. . . .	5
Prurigo.. . . .	1
Psoriasis.. . . .	2
Herpes.. . . .	5
Dermatitis.. . . .	1
Acne.. . . .	1
Seborrhoea.. . . .	1
Chilblains.. . . .	2
Ulcers.. . . .	29
Boils.. . . .	39
Carbuncles.. . . .	21
Wheal.. . . .	1
Pruritus.. . . .	2
Ring worm.. . . .	1
Frost bite.. . . .	8

Injuries, 550.

General injuries, 34.

Burns and scalds.. . . .	30
Multiple injuries.. . . .	2
Shock.. . . .	2

Local injuries, 516.

Rupture of muscle.. . . .	2
Wounds of muscles.. . . .	15
Fracture of skull.. . . .	8
Concussion of brain.. . . .	2
Contusion eyelids.. . . .	10
Wound of eyelid.. . . .	5
Wound of neck.. . . .	15
Wound of chest.. . . .	24
Contusion of chest.. . . .	31
Fracture of ribs.. . . .	21
Sprain of back.. . . .	7
Wound of back.. . . .	2
Contusion of abdomen.. . . .	4
Contusion of upper extremities.. . . .	27
Sprain of shoulders.. . . .	5
Sprain of elbow.. . . .	1
Sprain of wrist.. . . .	15
Sprain of hand.. . . .	2
Wound of upper extremities.. . . .	37
Fracture of clavicle.. . . .	6
Fracture of humerus.. . . .	20
Fracture of radius.. . . .	10



## SESSIONAL PAPER No. 21

TABULAR STATEMENT showing diseases for which seamen received treatment during  
1910-11—*Concluded*.

Local injuries—*Continued*.

Fracture ulna.. . . .	1
Fracture of radius and ulna.. . . .	5
Fracture of finger bones.. . . .	12
Dislocation of shoulder.. . . .	7
Dislocation of phalanges and thumb.. . . .	9
Contusion lower extremities.. . . .	75
Sprained hip.. . . .	7
Sprained knee.. . . .	5
Sprained ankle.. . . .	38
Sprained foot.. . . .	12
Fracture femur.. . . .	11
Fracture tibia.. . . .	10
Fracture of fibula.. . . .	5
Fracture of tibia and fibula.. . . .	2
Fracture of spine.. . . .	1
Fracture of pelvis.. . . .	2
Fracture of bone of nose.. . . .	2
Fracture lower maxillary.. . . .	2
Fracture patella.. . . .	10
Fracture of bones of foot.. . . .	11
Malingery.. . . .	18

Incomplete reports, 10.

Total number of Seamen treated, 3,234.



## APPENDIX No. 10.

## EXAMINATION OF MASTERS AND MATES.

OTTAWA, May 11, 1911.

ALEXANDER JOHNSTON, Esq.,  
Deputy Minister of Marine and Fisheries,  
Ottawa, Ont.

SIR,—I have the honour to place before you the annual report in connection with Masters' and Mates' examinations throughout Canada.

There are at present thirteen offices where examinations are held; as the Windsor office is now closed on account of Captain McGregor having resigned lately from the position of examiner there, the remainder are as follows:—Victoria, B.C., Captain Gaudin; Vancouver, B.C., Captain Eddie; Yarmouth, N.S., Captain Murphy; Lunenburg, N.S., Captain Wolff; North Sydney, N.S., Captain Sutherland; Charlottetown, P.E.I., Captain Cameron; Halifax, N.S., Captain Lugar, where examinations for all grades of certificates are held, which comprise foreign going, coastwise and also all local examinations, Nelson, B. C., Captain Hallett; Edmonton, Alberta, Captain Grant; West Selkirk, Man., Captain Thordarsen; Collingwood, Ont., Captain Coles; Toronto, Ont., Captain Moller; Windsor (now closed), Captain McGregor; Montreal, Captain Riley, where examinations for local certificates only are carried out.

It will be noted that 464 examinations were held for the various grades of certificates, 364 candidates having passed and 100 failed, and for sight test only 8 men coming up for that very necessary examination, but on the whole, there is a slight increase on last year's showing.

I have the honour to be, sir,  
Your obedient servant,

H. ST. G. LINDSAY,  
*Chief Examiner.*



## APPENDIX No. 11.

## MARINE SCHOOLS.

OTTAWA, May 11, 1911.

ALEXANDER JOHNSTON, Esq.,  
Deputy Minister of Marine and Fisheries,  
Ottawa, Ont.

SIR,—I have the honour to submit the annual report of attendance at lectures given at the Marine Schools established at the various ports of the Dominion under the supervision of the Marine and Fisheries Department. There have been seven schools where lectures were delivered during the winter, the local attendance being 2,685, not taking into account the lectures which were given by the late Captain Toye, lecturer for the department, at Montreal, Quebec, Three-Rivers and Sorel, a complete record of which has not been procured owing to his sudden death, but during the three months in which he lectured the attendance was reported to be very fair at all the above places, with the exception of Montreal where no support was given.

There is a slight increase over last year's showing in the numbers of attendance, but on the whole I think it has been disappointing, and the only school where attendance has been at all satisfactory is the one at Vancouver, where seamen and others seem to appreciate the benefits these schools mean to them in their profession. No change has been made in the programme of tuition at any of these schools this year.

The attached statement will show the number of lectures given, the minimum, maximum average and total attendance at each school.

I have the honour to be, sir,  
Your obedient servant,

H. ST. G. LINDSAY,  
*Chief Examiner and Superintendent of Marine Schools.*

Schools.	Lectures.	Minimum.	Maximum	Average.	Total.
Halifax, N. S. ....	32	2	24	7.8	249
Yarmouth, N. S. ....	30	6	12	8.7	260
Collingwood, Ont. ....	29	5	16	10.2	296
Midland, Ont. ....	13	.....	.....	9	120
Victoria, B. C. ....	35	9	28	18.4	645
North Sydney, N. S. ....	32	3	9	5.7	182
Vancouver, B. C. ....	34	16	38	24.5	983
Total. ....	205	41	127	84.3	2,685



APPENDIX No. 12.

REPORT OF THE CHAIRMAN OF THE BOARD OF STEAMBOAT INSPECTION.

CHAIRMAN'S OFFICE, OTTAWA, June, 1911.

To the Deputy Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit the annual report of the Steamboat Inspection Service of the fiscal year ending March 31, 1911.

It contains the work of the service during the time stated, giving the names and number of steamboats inspected in the several divisions and their gross tonnage, with the amount of dues collected from steamers employed in the carriage of passengers between Canadian ports but registered elsewhere than in Canada, and the amount of fees received for engineer examinations, with the names of the candidates and their grade of certificate.

In addition to the steamboats inspected, the inspection of ship's tackle and hoisting gear used for the loading and unloading of vessels was made at the following ports:—Halifax, 237, St. John 191, Montreal 888.

NUMBER of steam vessels reported as known by the inspectors of steamboats in the Dominion for the year ending March 31, 1911, also the number of steamers inspected but not registered in the Dominion for the same date.

Division.	Number of Dominion registered steamers.	Gross tonnage of Dominion registered steamers.	Number of steamers inspected but not registered in the Dominion.	Gross tonnage of steamers inspected but not registered in the Dominion.
Toronto .....	377	115,586	55	70,777
Collingwood .....	166	66,876	8	12,409
Kingston .....	184	34,396	14	6,988
Montreal .....	226	25,429	2	2,384
Sorel .....	106	39,674	.....	.....
Quebec .....	121	27,759	3	3,715
Nova Scotia .....	183	41,476	22	40,777
New Brunswick and Prince Edward Island.	151	29,405	7	14,258
Vancouver and Yukon .....	215	29,717	9	9,585
Victoria, B. C. ....	151	60,151	32	42,068
Manitoba and North West Provinces..	188	15,952	7	10,869
Total.. .....	2,069	486,421	159	213,830



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NUMBER of Dominion registered steamers inspected and their gross tonnage, with amount of fees collected on account of steamboat inspection during the year ended March 31, 1911.

Division.	Number of Dominion registered steamers inspected.	Gross tonnage of Dominion registered steamers inspected.	Amount of fees collected on account of Steamboat Inspection.
			\$ cts.
Toronto.....	330	113,383	138 40
Collingwood.....	137	65,121	45 68
Kingston.....	172	33,648	.....
Montreal.....	200	23,481	30 40
Sorel.....	99	36,497	.....
Quebec.....	117	26,951	297 20
Nova Scotia.....	160	39,287	2,732 40
New Brunswick and Prince Edward Island.....	135	27,754	.....
Vancouver, B. C. ....	188	28,689	501 60
Victoria and Yukon.....	146	58,505	679 52
Manitoba and North West Provinces.....	128	13,483	.....
Engineer's Certificates.....			1,501 50
Total.....	1,812	466,799	3,944 70

## BOARD MEETINGS.

Owing to the increase of work at British Columbia it was found necessary to appoint another Boiler and Machinery Inspector at the Port of Vancouver, B.C., for which a Board meeting was convened to examine candidates for the position. Mr. Alfred E. Hopper having passed a satisfactory examination was appointed by Order-in-Council of October 14, 1910.

On January 18, 1911, a meeting of the Board was convened in the Chairman's office at Ottawa to consider a grievance relating to a boiler built for the SS. *Champion* and to fix the working pressure therefor. The Board decided that owing to the form of boiler whereby a portion of the shell, externally, was exposed to the direct action of the fire, it could not be rated under Part 1 of the rules; also that any type of boiler where externally fired, a greater thickness of plate in shell than one-half inch should not be countenanced.

PROSECUTIONS AND PENALTIES ENFORCED FOR VIOLATIONS OF PART VII OF THE CANADA SHIPPING ACT, STEAMBOAT INSPECTION.

On August 18, 1910, a complaint was laid by the steamboat inspector that the owner of the SS. *Niska* of Toronto, persisted in carrying passengers in defiance of the law. Instructions were issued to take legal action to inflict the penalty for so doing when three charges were laid, one for carrying passengers without a license, one for running the boat before certificate had been issued, and one for employing an engineer without a certificate, for which fines were imposed of \$100 in the first charge, and \$50 each in the other two cases, amounting in all to \$200, for which a cheque was received by the department on October 20, 1910.

## CASUALTIES.

The following are the casualties reported from the several divisions during the year ended March 31, 1911.



*Toronto Division.*

On May 17, 1910, the crank shaft of SS. *Midland Prince* broke while the steamer was on Saginaw bay. The engines were worked compound to Detroit, Mich., where a new shaft was installed.

On September 14, 1910, while the steamer *Kingston* was abreast of the Main Ducks Lake Ontario, the starboard shaft broke. The steamer returned to Kingston under one paddle and was afterwards towed to Toronto, a new shaft being fitted during the winter.

On September 15, 1910, the steam yachts *Tokolo* and *Osso* were totally destroyed by fire at Beaumaris, Muskoka. The fire started in a boathouse on the wharf where the steamers were lying and reached them before they could be removed to safety.

On September 16, 1910, the tug *Pilot* was totally destroyed by fire at Blackstone bay near Parry Sound. The cause of fire was unknown.

On November 25, 1910, the tug *W. C. Francis* was totally destroyed by fire at Rondeau harbour, Lake Erie. Cause of fire unknown.

On November 26, 1910, the steamer *Alaska* was totally destroyed by fire at Tobermory harbour. Cause of fire is unknown.

On December 6, 1910, the SS. *Dunelin* ran ashore on Isle Royale, Lake Superior. She was released and taken to Port Arthur and is being repaired at that port.

On December 10, 1910, the tug *Jean* while lying at her winter quarters at Amherstburg, was burned to the water's edge. The cause of fire is unknown.

On March 26, 1910, the steamer *Cataract* was partially destroyed by fire at Brockville, Ont. The steamer was being fitted out for this season's work and the cause of fire is reported to be unknown.

*Collingwood Division.*

April 25, 1910.—The tug *Kate* of Sault Ste. Marie was totally destroyed by fire at the north end of Sault Ste. Marie canal, Ont. Cause of fire unknown. No casualties.

November 6, 1910.—The steamer *Wasaga* of Collingwood while lying in shelter at Copper harbour, Mich., was totally destroyed by fire. Cause of fire unknown. No casualties.

November 25, 1910.—The tug *Saucy Jim* of Collingwood was totally destroyed by fire while lying at Christian island. Cause of fire unknown. No casualties.

November 30, 1910.—The SS. *Athabasca* of Montreal, upward bound near Lime island, Sault Ste. Marie river, at 3.40 a.m. collided with the United States tug *General*, which resulted in sinking of the tug and the drowning of three of her crew. The SS. *Athabasca* suffered no apparent injury.

*Kingston Division.*

April 11, 1910.—The steamer *D. D. Calvin* of Kingston while lying in winter quarters was destroyed by fire. No fatalities occurred. The machinery has since been removed from the hull.

August 11, 1910.—The steamer *America* of Kingston, on her trip to the Thousand Islands broke her low pressure cylinder cover. No fatalities occurred.

November 12, 1910.—At 12.30 a.m., the SS. *Belleville* of Montreal, when on her trip between Montreal and Hamilton ran aground on Lake Ontario at a point opposite Grafton, tearing a large hole in her bottom on starboard side. No fatalities. The vessel was taken to the Kingston dry dock, repaired and put in sea-worthy condition.

*Montreal Division.*

October 17, 1910.—The steamer *G. H. Notter* of Ottawa, 14 gross tons, was totally destroyed by fire while lying at the Lachine wharf. Cause of fire unknown. No casualties.



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*Quebec Division.*

Casualty returns, nil.

*Nova Scotia Division.*

March 24, 1911, at 4.40 a.m., the SS. *Bruce* of St. John's, Newfoundland, plying in Canadian waters in the carriage of passengers and certificated by the Canadian inspectors for that purpose, grounded at Cape Breton, N.S., becoming a total loss. During the launching of the lifeboats one of the crew was lost. A preliminary investigation was held by the department as to the cause of the accident, which was found to be due to an error of judgment by the master in charge.

*New Brunswick and Prince Edward Island Division.*

July 26, 1910.—SS. *Aurora* of Lunenburg, while on her trip from St. John to Grand Manan, N.B., broke the piston rod of the low pressure cylinder, carrying away the cylinder cover also. The vessel proceeded to St. John with one cylinder where repairs were made.

October 4, 1910.—While towing a scow from Sand point in the channel between the breakwater and Partridge island, the steering gear of the tug *Help* of Liverpool, N.S., became disabled. There was a high wind and heavy sea running and she was driven ashore on the outside of breakwater and became a total loss. No fatalities.

January 14, 1911.—The ferry steamer *E. Ross* of St. John, N.B., plying between Indiantown and Pleasant point fractured the thrust shaft, which was repaired, and on the 17th, the tail shaft was fractured and repaired. These fractures were caused by the wheel coming in contact with drift wood in the river.

*Manitoba and Northwest Provinces.*

June 28, 1910.—Steamer *Majestic* of Winnipeg, 135 gross tons, while lying at her dock at Gash point, Rainy lake, was totally destroyed by fire which started about midnight at the back end of the boiler. Cause of fire unaccounted for. No fatalities.

September 22, 1910.—Steamer *Kaministiquia* of Port Arthur, 106 gross tons, while lying at a dock in the harbour during the night caught fire and was totally destroyed. Cause of fire unknown. No fatalities.

*British Columbia and Yukon Division.*

May 27, 1910.—SS. *Kaslo* of Victoria, 765 gross tons, on a trip from Nelson to Kaslo while making a landing at Ainsworth during a gale, was driven on top of submerged piling, receiving extensive damage. She was eventually lifted and hauled out on ways. It has not yet been decided if the vessel will ever be repaired. No fatalities.

July 15, 1910.—SS. *Charlotte* of Victoria, 317 gross tons, on a trip from Fort George, Upper Fraser river, was carried by strong current on to rocks, whereby a large hole was pierced on port side. The vessel was beached, and since has had machinery and boiler taken out. Hull abandoned. No fatalities.

August 5, 1910.—SS. *Princess May* of Vancouver, 1,717 gross tons, on a voyage from Skagway to Victoria, at 1.55 a.m. struck on north end of Sentinel island, Lynn canal, Alaska, and remained. All passengers, mail, and baggage safely landed and forwarded to destination on September 10. She was hauled off, towed to Victoria, and placed on Marine ways. Damage very extensive. Vessel will again be put in sea-worthy condition.

September 28, 1910.—SS. *Albion* of Victoria, 88 gross tons, on a voyage to Sechart inlet stranded off Boulder reef, Malaspina straits, and remained. During a gale on October 2, vessel broke up. Machinery and boiler saved.



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September 25, 1910.—SS. *Fern* while lying anchored at Tongue point, Northwest bay, and all hands ashore, took fire and became a total loss.

September 8, 1910.—The tug *Fraser* of Vancouver when on a trip down the Fraser river caught fire. Hull a total loss. Boiler and machinery saved. No lives lost.

September 17, 1910.—SS. *Belcarra* of Vancouver, 253 gross tons, when on her trip from Vancouver to Ladysmith stranded on the rocks in Agamemnon channel. Her stern was afloat, and as the tide dropped, she slid off and sank in deep water. Total loss. No fatalities.

March 24, 1911.—SS. *Sechelt* of Vancouver, 105 gross tons, on her trip from Victoria to Sooke, west coast, at 5 p.m. foundered in a gale. All on board were drowned, to the number of nine passengers and six of a crew. The department has authorized an investigation in order to obtain the fullest information pertaining thereto.

I am, sir, your obedient servant,

E. ADAMS,  
*Chairman Board of Steamboat Inspection.*



SESSIONAL PAPER No. 21

## APPENDIX No. 13.

REPORT OF THE GENERAL SUPERINTENDENT OF PILOTAGE FOR  
CANADA.

OTTAWA, May 18, 1911.

ALEXANDER JOHNSTON, Esq.,  
Deputy Minister of Marine and Fisheries,  
Ottawa, Ont.

SIR,—I have the honour to submit the annual report respecting the Pilotage Corporations of Montreal and Quebec. The statements of other pilotage authorities which I have the honour to supervise will be found in Supplement No. 1 to the Annual Report. The authorities are as follows:—

## Pilotage Authority of Vancouver, B.C.

"	New Westminster, B.C.
"	Nanaimo, B.C.
"	Victoria and Esquimalt, B.C.
"	St. John, N.B.
"	Shediac, N.B.
"	Miramichi, N.B.
"	Richibucto, N.B.
"	Halifax, N.S.
"	Northport-Tidnish, N.S.
"	Restigouche, N.S.
"	Pugwash, N.S.
"	Pictou, N.S.
"	Ste. Anns, N.S.
"	Sydney, N.S.
"	Parrsboro, N.S.
"	Louisburg, N.S.
"	Buctouche, N.S.

A detailed statement of the doings and earnings of Montreal and Quebec pilotage is herewith attached.

As in the past, I presided over the annual examinations of pilots of both Quebec and Montréal Corporations, and am pleased to report that not a single case of defect in the sight was found among the number of pilots examined. As heretofore, the Holgrem's method of test has been followed. In Quebec, Doctor Pagé assisted me and, in Montreal, Dr. Duhamel took the notes at the examination of each individual.

Seven apprentice pilots were examined in Quebec, five being accepted and added on the ranks. In Montreal, five apprentice pilots were examined and three of them accepted. One apprentice having finished his time and, being the senior, was promoted to the position of pilot.

I have the honour to be, sir,

Your obedient servant,

L. A. DEMERS,  
*General Superintendent of Pilotage.*



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REPORT, CORPORATION OF PILOTS FOR AND ABOVE THE HARBOUR OF QUEBEC, 1910.

Number of pilots.. . . . .		50
	In	Out
Number of trips to Montreal.. . . . .	825	776
Number of trips to intermediate points.. . . . .	57	57
	<hr/>	<hr/>
Total number of trips.. . . . .	882	833
Total earnings to Montreal.. . . . .	\$78,370	88
Total earnings to intermediate ports.. . . . .	3,497	95
	<hr/>	
Grand total.. . . . .	\$81,868	83
Total earnings of Tour-de-Rôle pilots.. . . . .	11,526	46
Number of trips made by selected apprentice pilots with branch pilots on ocean steamers, during the year.. . . . .		372
Number of apprentice pilots for and above harbour of Quebec.. . . . .		24
Pensioners and total amount paid to widows—		
Pensioners.. . . . .		34
Total amount paid.. . . . .	\$1,771	29

Number of vessels reported in office, tonnage, crews and number of passengers inward, 1910:—

Sea-going vessels.. . . . .	719
Lake steamers.. . . . .	310
Schooners.. . . . .	34
Barges, tugs and steam yachts.. . . . .	12
	<hr/>
Total.. . . . .	1,075
Total tonnage of these vessels.. . . . .	2,562,876
The number of masters and crews.. . . . .	60,891
Number of passengers inward.. . . . .	78,405

From 1906 to 1910—

- 11 pilots were pensioned, having attained the age limit.
- 1 dismissed.
- 1 resigned.

L. A. DEMERS,  
*General Superintendent of Pilotage*

OTTAWA, March 31, 1911.

REPORT, CORPORATION OF PILOTS FOR AND BELOW THE HARBOUR OF QUEBEC, 1910.

State of fund—

Money lent.. . . . .	\$92,800 00
Money in saving department.. . . . .	8,600 00
Money in hand.. . . . .	62 54
Arrears due.. . . . .	30 00
	<hr/>
Total.. . . . .	\$101,432 54

Branch pilots for and below the harbour of Quebec for 1910—

Number of pilots on active list.. . . . .	84
Pilotage effected.. . . . .	1,841
Pilots to be pensioned.. . . . .	6
Number of apprentice pilots.. . . . .	14



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Statement of monies paid and received by the Corporation of Pilots of Quebec in connection with the fund for invalid pilots, during 1910, will be found in Supplement No. 1 to the report, "Harbour Commissioners."

Pilotage earnings from 762 British vessels.. . . .	\$125,062 28
Pilotage earnings from 47 foreign vessels.. . . .	5,165 86

Making a total of.. . . .	\$130,228 14
Total expenses, including 7% in decayed pilot fund.. . .	23,224 19

Leaving.. . . .	\$107,003 95
-----------------	--------------

Which has given a dividend to each pilot of \$1,325.

L. A. DEMERS,  
*General Superintendent of Pilotage.*

OTTAWA, March 31, 1911.



## APPENDIX No. 14.

## REPORT OF THE WRECK COMMISSIONER.

OTTAWA, May 18, 1911.

ALEXANDER JOHNSTON, Esq.,  
Deputy Minister of Marine and Fisheries,  
Ottawa, Ont.

SIR,—I have the honour to submit to you a list of the wrecks and casualties which occurred in the Canadian waters during the fiscal year of 1910-11.

All the cases have been dealt with either by preliminary or formal investigations, with the exception of the following:—

SS. *Princess May*, SS. *Belcarra*, SS. *St. Denis*, which vessels met with disaster on the coast of British Columbia, also the SS. *John Irwin*, schooners *Midnight* and *Lila D. Young*, SS. *General Wolfe* and SS. *Ocamo* and *Yarmouth*.

The reason these cases have not been dealt with completely during the past fiscal year is that the department intended to make some changes in the status concerning the conduct of investigations into wrecks. These cases are now being dealt with as promptly as possible.

Preliminary inquiries have been conducted by Captain Eddie in Vancouver, Captain Lugar in Halifax and Captain Riley in the province of Quebec and the lakes.

I have the honour to be, sir,

Your obedient servant,

L. A. DEMERS,  
Wreck Commissioner.



## SESSIONAL PAPER No. 21

ANNUAL Reports of Wrecks and Casualties which occurred to Canadian and Foreign Vessels in Canadian Waters during 1910.

Date of casualty.	Name of ship.	Registered port.	Where casualty happened.	Investigation.
June 28....	Aotea . . . . .	.....	Stranded south shore River St. Lawrence, place called Claude River.	Prel. and formal inv. by Capt. Demers.
June 1....	Borghild.....	Norway.....	Struck Castor Ledge, N.S.	Prel. investig. by Capt. Murphy.
May 31....	Ben Cruachan . . . . .	.....	Grounded inside of Port Nova, N.S.	Prel. inv. by Capt. Sutherland, formal, by Capt. Lugar.
May 18...	Beluga & Zaidee . . . . .	.....	Collided in Sydney Harbour.	Prel. and formal inv. by Capt. Lugar.
Sept. 17....	Belcarra.....	.....	Stranded in Agamennon Channel, B.C.	Prel. inv. by Capt. Eddie
Feb. 7...	Centreville.....	.....	Stranded at Trout Cove, N.S.	Prel. and formal inv. by Capt. Lugar.
May 30 .	Crown of Castile ...	Glasgow.....	Touched between buoys 91 and 93 St. Lawrence Channel.	Prel. and formal inv. by Capt. Demers.
June 13....	Cassandra & Advance . . . . .	.....	Contravention of Rules of the Road.	Prel. inv. by Capt. Riley and formal inv. by Capt. Demers.
Aug. 9....	Creigendora . . . . .	.....	Stranded near South Pt. Anticosti, Glf. St. Lawrence.	Prel. and formal inv. by Capt. Demers.
May 4....	Ellen.....	Norway.....	Grounded at entrance of Sydney Harbour.	Prel. and formal inv. by Capt. Lugar.
May 10....	Grampian . . . . .	.....	Stranded at Cap-à-la-Roche.	Prel. inv. by Capt. Riley
Nov. 6 ...	General Wolfe.....	.....	Went ashore in Harrington Harbour.	Prel. inv. by Capt. Riley
Apr. 18. .	Hilford.....	.....	Stranded near Devil's Island.	Prel. inv. by Capt. Lugar
June 19....	Heimdal.....	Norway.....	Stranded on Sable Island	Prel. inv. by Capt. Lugar
Nov. 3....	Harlaw.....	.....	Stranded in Harbour of Sydney.	Prel. inv. by Capt. Gordon.
May 18...	Invermore & Beluga. . . . .	.....	Collided at entrance of Sydney Harbour.	Prel. and formal inv. by Capt. Lugar.
May 26....	Irisbrook.. . . .	.....	Stranded near Black Rock Head, Parrsboro, N.S.	Prel. and formal inv. by Capt. Lugar.
June 17....	John Hanlan & Launch Cecilia.	Toronto.....	Collided in Bay of Toronto	Prel. inv. by Coroner and formal by Capt. Demers
Dec. 16 ...	John Irwin. . . . .	.....	Stranded near Queensport.	Prel. inv. by Capt. Lugar
May 28....	Kaslo.....	.....	Wrecked on Kootenay Lake.	Prel. inv. by Lt. Gordon Hallett.
June.. ....	Keystone & Gleggarry.	.....	Contravention of Rules of the Road.	Capt. Riley held a preliminary investigation.
Aug. 25...	Kingdom.....	United States ship.	Grounded on Mud Island, N.S.	Prel. inv. by Capt. Lugar
Jan. 24....	Lansdown.....	.....	Grounded at Public Harbour, N.S.	Prel. and formal inv. by Capt. Lugar.
May 24....	Minto & Rosalind... .	Halifax, N.S.....	Collided at Peake's Wharf No. 2, Charlottetown, P.E.I.	Prel. inv. by Capt. Taylor, formal inv. by Capt. Lugar.
May 19....	Montezuma.....	.....	Grounded on St. Augustine's Bar, St. Lawrence	Prel. inv. by Capt. Riley
Aug. 28 ..	Manchester Engineer . . . . .	.....	Grounded on Southwest Pt. of Belle Isle, Belle Isle Strait.	Prel. and formal inv. by Capt. Demers.
Sept. 23....	Montcalm & Kron Prinz Olaf.	Norway.....	Collided near Channel Patch, River St. Lawrence.	Prel. inv. by Capts. Lugar and Demers, formal inv. by Capt. Demers.
June 20....	Prinz Oskar.... .	Norway.....	Grounded in Strait of Belle Isle, on Flower Pot Ledge.	Prel. inv. by Capt Demers.
Nov. 6....	Prinz Adalbert & Tow of Tug Spray.	.....	Collided and caused damage near Vercheres.	Prel. inv. by Capt. Riley



ANNUAL Reports of Wrecks and Casualties which occurred to Canadian and Foreign Vessels in Canadian Waters during 1910—*Concluded.*

Date of casualty.	Name of ship.	Registered port.	Where casualty happened.	Investigation.
Aug. 5 ...	Princess May.-.....	.....	Stranded on Sentinal Is- land, Alaska.	Prel. inv. by Capt. Eddie
Dec. 19 ...	Barque Petra.....	.....	Stranded on Pennant Is- land, N.S.	Prel. inv. by Capt. Lugar
Dec. 18....	Plessis & Queen. . . . .	.....	Collided at Chouinard Wharf, Q.	Prel. inv. by Capt. Riley
Feb. 14....	Quadra... ..	.....	Stranded on Sydney Spit	Prel. inv. by T. G. Mit- chell.
Oct. 29....	Roberval. ....	.....	Sunk at foot of Grenville Canal.	Prel. inv. by Capt. Riley
July 11....	Stigstad ..... .	.....	Grounded at Cap-à-la- Roche.	Prel. inv. by Capt. Riley
Oct. ....	Symra & Two Schoo- ners.	.....	Collided off the Pillars below Quebec, River St. Lawrence.	Prel. inv. by Capt. Riley
Sept. 24...	St. Denis & Princess Charlotte.	.....	Contravention of Rules of the Road.	Prel. inv. by Capt. Eddie
July 23...	Trym..... .	.....	Grounded at Cap-à-la- Roche.	Prel. inv. by Capt. Riley
Sept. 22....	Trym & Bergeronne. ....	.....	Collided causing damages	Prel. inv. by Capts. Riley and Demers.
May. ...	Westfield..... .	.....	Struck an object in vi- cinity of Cap Charles.	Prel. inv. by Capt. Riley
May. ....	Westfield & Sicilian. ....	.....	Came in contact at Wind- mill Pt.	Prel. inv. by Capt. Riley
May. 28....	Wacousta..... .	Glasgow . . . . .	Stranded on St. Paul Is- land.	Prel. and formal inv. by Capt. Lugar.

L. A. DEMERS.



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## APPENDIX No. 15.

## REPORT ON LIFE-SAVING STATIONS.

SIR,—I have the honour to submit the following report on Life-saving Stations inspected by me during the last season, 1910-11.

## PRINCE EDWARD ISLAND.

*Charlottetown, P.E.I.*—I found the boathouse, boat and gear in good condition; coxswain and crew efficient.

There is but small chance of the boat being called upon for service in the immediate vicinity, but she could be transported by rail to the scene of any wreck, and therefore the station should be maintained. The boathouse, however, is too small and should be enlarged and so fitted that the boat could be loaded straight unto a truck through the rear door.

*Souris, P.E.I.*—Boat and gear in good condition and a very good coxswain and crew. The roof of boathouse is too low and ought to be lifted.

*Priest Pond, P.E.I.*—*Bocket apparatus.*—The brigade carried out a very excellent drill, but 7 men are not sufficient to work the gear.

*Magdalen Islands.*—Accompanied by Mr. S. C. Campbell, I made a complete tour of the islands.

*Pictou Island.*—Boat and boathouse in excellent condition. A very efficient coxswain. Unfortunately I could not get hold of the crew.

*Scatarie, N.S.*—Boathouse, boat and gear in good condition; very good coxswain and crew.

*Canso, N.S.*—House, boat and gear in very good condition. Coxswain and crew very good.

*Whitehead, N.S.*—There had been several letters written about the coxswain reporting that he was too old, was lax in carrying out drills, &c. Mr Campbell and I made a thorough investigation into the matter and came to the following conclusion: That the reports with regard to laxness in carrying out drills were false, and that although somewhat advanced in years, Hugh Munroe is still fitted for the position of coxswain of the lifeboat.

*Devil's Island.*—The boat and gear were in good condition, but the boathouse was dirty and badly kept and Mr. Campbell had to visit the station again at a later date, when he found a good deal of improvement. The coxswain is a good boatman and has a good crew, but seems to be somewhat slovenly.

*Duncan's Cove.*—The best kept house through the maritime provinces; everything in excellent order; coxswain and crew thoroughly up to their work both in the boat and with the Lyle gun.

*Herring Cove.*—Boathouse, boat and gear in good order. Could not get hold of the crew.

*Baker's Cove, (Yarmouth), N.S.*—Very well kept house. Boat and gear in good condition. Coxswain and crew excellent.

*Grand Manan (Outer Wood Island).*—This station was in the course of construction when I visited it.



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*Richibucto, N.B.*—Boathouse, boat and gear in excellent condition. Coxswain and crew could not be improved on.

*Banfield Creek, B.C.*—I went from Alberni to Banfield creek in the boat and consider her first-class in every way. The coxswain appeared a very capable intelligent man, with a thorough knowledge of the boat work and a good command over his crew. The crew are a fine able-bodied lot of men. The boathouse and buildings were clean and well kept, but the quarters are very cramped for men living there all the year round, and improved accommodation would render the men more content and be a benefit to the service.

*Ucluelet, B.C.*—This station was not in commission when I visited it, but I got hold of the coxswain who is well fitted for the position, as far as I could judge. The boathouse is in the wrong place and should be moved to French cove, which would make a very good place for the station. The land belongs to a Mr. Charles Spring of James Bay, Victoria, and a half acre would be required for the station.

*Cayoquot, B.C.*—This station was also not in commission, but I had the coxswain, Mr. Arnet with me for two days cruising up and down the coast to find a more suitable place to locate the station. The present position is practically useless as by the time the men had pulled the boat out of the harbour, they would be pretty well done up. There is a place called shelter bay which would be a far better place for the station. I had two thoroughly good boatmen sent to camp there from November 29 to December 10 to watch the conditions, and I have attached a copy of their report.

*Toronto.*—Inspected Toronto life-saving station and exercised the boat's crew. Found the coxswain a very capable man, thoroughly up to his work and the boat's crew very good. The boat itself is good, but the conditions in general most unsatisfactory. The new boathouse has been built at the western entrance to the harbour, while the boat and crew are at the eastern entrance, between two and three miles from the boathouse. A separate memo. with my recommendations has been sent in about this station.

*Long Point.*—I visited the boathouse and was perfectly satisfied with the new position and also with the house itself, which has been built. The crew, not being in commission, I could not exercise the crew.

*Port Stanley.*—I inspected the Port Stanley life-saving station. The coxswain was away, but I took the crew out for exercise and was well satisfied with their work.

*Point Pelee.*—I visited Point Pelee station and saw the proposed coxswain and some of the crew.

*Goderich.*—I visited Goderich and was well satisfied with the coxswain and crew. With proper equipment, this would be a very effective station.

*Kincardine.*—I inspected Kincardine, exercised the crew and was quite pleased with both coxswain and crew.

*Southampton.*—I visited the boathouse at Southampton, but was unable to get the crew together. I inspected the boat and boathouse with the coxswain. Everything in first rate order.

*Collingwood.*—I inspected Collingwood life-saving station. A very good coxswain and crew. The boat and gear in very good order, but the boathouse, which has recently been moved, requires a good deal of repairing.

*Port Hope.*—I visited Port Hope. Boathouse, boat and gear in excellent order. The coxswain and crew thoroughly good boatmen.

*Cobourg.*—I visited Cobourg and found everything in a very satisfactory condition.

*Consecon.*—I visited Consecon, but did not get hold of the crew. The coxswain appears to be an excellent man for the position. The boat, boathouse and gear were exceedingly well kept.



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During the year a permanent station has been established at Little Wood island, Grand Manan, equipped with twin screw motor boat built at Sorel, and a Beebe-McLellan self-bailing boat. The crew consists of coxswain and five men. Telephone cable was laid from Gannet Rock to Little Wood island and from there to Seal cove by Big Wood island.

At Entry island, Magdalen islands, a station was established, equipped with Beebe-McLellan self-bailing surf boat and volunteer crew.

*Long Point, Lake Erie.*—This station has been moved over to the east end of Long Point and the crew established permanently from September 1 to December 31.

*Point Pelee.*—A permanent crew was placed here from September 1 to December 15.

A new twin screw motor boat was built at Sorel for placing at Cheticamp, N.S.

## SERVICES RENDERED BY LIFE-BOATS DURING THE YEAR.

*Brier Island.*—January 10, 1911, the *Archer Crowele* was towed into safety to the Brier island.

*Pictou Boat.*—The *Aurou* wrecked on Pictou island, crew saved by life-boat.

*Cobourg.*—November 27, 1910.—Barge ship went ashore at Cobourg. Lifeboat went to her assistance and she was towed off, it was blowing a gale and very cold.

December 9, the schooner *St. Louis* anchored off Cobourg in heavy gale. The lifeboat went out to her and found the crew exhausted, and ship leaking badly. The lifeboat crew manned the pumps all night and brought her into harbour next day after chopping the sails out of the ice.

July 10, St. Pauls island.—Schooner *Mary A* was carried close in to the rocks. Lifeboat went to her assistance and towed the vessel clear.

April 27, 1910, Canso.—The *Niagara* went ashore on L. W. breaker. Crew of 18 were saved.

September 8, Richibucto.—The *J. H. Plummer* was wrecked on the beach at Richibucto. Crew of 4 saved by lifeboat crew.

October 2.—The *Neil Tow* wrecked on the beach, crew of 2 saved by lifeboat crew.

HENRY THOMPSON,

Commander, R.N.,

General Superintendent of Life Saving Service.



LIFE-SAVING Stations maintained

Number.	Stations.	Established.	Coxswain.	Crew.	Coxswain's salary. Per annum.	Pay of Crew.
	<i>New Brunswick—</i>				\$	
1	Little Wood Island. ....	1910	Turner Ingalls..	7	60	\$35 per month, 50c. a day board.
2	Richibucto .....	1907	Albert Long....	7	75	" " ..
3	Point Escuminac.....	1908	E. F. Fleiger. ..	7	75	" " ..
	<i>Nova Scotia—</i>					
4	Baker's Cove.....	1886	A. Cain.....	7	75	" " ..
5	Blanche.....	1889	W. A. B. Smith.	7	75	" " ..
6	Clark's Harbour.....	1900	T. N. Nickerson.	7	75	" " ..
7	Canso.....	.....	W. R. Matthews	7	75	" " ..
8	Devil's Island.....	1885	B. H. Henne- berry.	7	75	" " ..
9	Duncan's Cove.....	1886	J. W. Holland..	7	75	" " ..
10	Herring Cove .....	1885	J. Gorman.....	7	75	" " ..
11	Pictou Island.....	1889	Alex. Currie....	7	75	" " ..
12	Port Mouton .....	1889	Walter Cook....	7	75	" " ..
13	Scatarie .....	1885	J. T. Martel....	7	75	" " ..
14	Seal Island .....	1880	Thos. Symonds..	7	250	\$100 per annum.....
15	St. Paul's Island .....	1885	Supt. Humane Establishment.	3	.....	\$300 each per annum .....
16	White Head .....	1890	H. P. Monroe ..	7	75	\$2 per drill and extra when saving life.
17	Sable Island.....	1885	{ G. Soderberg..... { J. Ritcey.....	..... .....	250 250	Paid as island staff
	<i>Prince Edward Island</i>					
18	Priest Pond .....	1909	J. J. Ryan. ....	7	75	\$2 per drill and extra when saving life.
19	Charlottetown .....	1907	.....	.....	.....	" " ..
20	Souris.....	1907	N. McIntosh ...	7	75	" " ..
21	Alberton.....	1907	John Champion.	7	75	" " ..
	<i>British Columbia—</i>					
22	Pachena { Banfield }	1909 1907	W. H. Gillen. ....	{ {	40 perm. 75 perm.	\$50 for engineer, \$45 for two men per month.
23	Uclulet.....	1908	A. W. Lyche....	6	75 perm	\$60 per month for men during season and \$100 per annum when boat is not in commission. Volunteers 50 cents per hour when required.
24	Tassiat .....	1907	W. Kennedy....	1	60	Patrol .....
25	Clayoquot .....	1908	J. Chesterman.	7	75	\$60 per month when employed. Volunteers 50 cents per hour when required.
26	Seven Mile Creek.....	1909	R. E. Daykia...	1	60	.....



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by the Dominion Government.

Description of Boat.	Cost.	Where Built.	Equipment.	Remarks.
	\$			
Beebe-McLellan twin screw, motor boat.	2,500	Sorel, P.Q.....	Full regulation.	New station built and telephone communications established between Grand Rock, Little Wood Island and Seal Cove.
Race point surf-boat, 24 feet long.	225	"	"	
Beebe-McLellan self-bailing....	225	"	"	Boathouse to be built.
Dobbin's pattern self-righting, 25 feet long.	575	Dartmouth, N.S.	"	Iron rails laid in 1900.
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	"	"	New boat, 1901.
Beebe-McLellan self-bailing, 25 feet long, low ends.	250	"	"	Boathouse completed June 7, 1909.
Dobbin's pattern, surf-boat, self-bailing, 25 feet long.	575	"	"	Lyle gun at this station.
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	Shelburne, N.S..	"	Lyle gun at this station and new boat in 1903.
"	250	"	"	
Dobbin's pattern, self-righting and bailing, 25 feet long.	575	Dartmouth, N.S.	"	
"	575	"	"	
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	Shelburne, N.S..	"	New boat in 1903.
Beebe-McLellan boat on east side.	240	"	"	
Beebe-McLellan boat on west side.	240	Halifax, N.S...	"	
Beebe-McLellan self-bailing, 25 feet long, low ends.	250	Shelburne, N.S..	"	Lyle gun here since 1903.
Dobbin's pattern, surf-boat, self-bailing, 25 feet long.	575	Dartmouth, N.S.	"	
Two Dobbin's pattern, self righting and bailing, and one Beebe-McLellan surf-bailing.	1,100	Halifax, N.S.	"	Lyle gun and rocket apparatus at this station. Coxswain under control of Supt. of Humane Establishment.
Board of Trade apparatus.....	....	England .....	"	
Beebe McLellan self-bailing	225	Shelburne, N.S..	"	
"	225	"	"	
"	225	"	"	Rocket apparatus has been placed and house for the same.
Doherty's Improved Beebe-McLellan, 25 feet long.	575	Vancouver Shipyard Co., Vancouver, B.C.	"	Placed at Pachena Bay.
Self-righting self-bailing power lifeboat, 36 feet long.	1,184.52	Bayonne City, U.S.A.	"	New motor boat and Lyle gun in combination with Pachena Bay.
Doherty's Improved Beebe-McLellan, 25 feet long.	575	Vancouver Shipyard Co.	"	
"	575	"	"	



LIFE-SAVING Stations maintained

Number.	Stations.	estab- lished.	Coxswain.	Crew.	Coxswain's salary. — Per annum.	Pay of crew.
	<i>Ontario— Great Lakes—</i>				\$	
27	Cobourg .....	1882	D. Rooney. ....	7	75	\$2 per drill and extra when saving life.
28	Collingwood .. . . . .	1885	G. F. Watts.....	7	75	" " ..
29	Goderich .. . . . .	1886	D. MacKay ....	7	75	\$2 per drill and extra when saving life.
30	Kincardine.....	1903	Thos. McGaw..	7	75	" " ..
31	Long Point.....	1902	Geo. Wisner...	7	75	1st April to Dec., Cox. \$60 per month Crew \$50 per month, \$15 board.
32	Point Pelee.....	1900	L. Wilkinson...	7	75	1st April to 15 Dec., Cox. \$60 per month Crew \$50 per month, \$15 board.
33	Port Hope.....	1889	W. T. Clark....	7	75	" " ..
34	Port Stanley.....	1885	J. R. Moore....	7	75	" " ..
35	Toronto Island.....	1883	Wm. Ward.....	7	75	" " ..
36	Consecon . . . . .	1898	John O. McLean	7	65	" " ..
37	Southampton.....	1907	John A. Mac- Auley.	7	75	" " ..

NOTE—There are several other places in Canada, not regularly organized, which receive support from N.S., Cape Termentine, N.B., and Wellington on Lake Ontario. There is also a life saving station at



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by the Dominion Government—*Concluded.*

Description of boat.	Cost.	Where built.	Equipment.	Remarks.
	\$			
Dobbin's pattern, self-righting and bailing.	750	Goderich, Ont..	" ..	
Beebe-McLellan self-bailing surf-boat.	375	Collingwood, O..	" ..	New boat in 1896.
Surf-boat.....	330	Collingwood, O.	Full regulation..	New boat in 1892.
Beebe-McLellan self-bailing, surf-boat.	350	" ..	" ..	New boat in 1903.
Surf-boat.....	500	" ..	" ..	Station moved to East end of Point. Telephone communication being established.
" ..	350	" ..	" ..	A tramway has been constructed at this station.
Dobbin's pattern, self-righting and bailing.	620	Goderich, Ont..	" ..	
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	350	Collingwood, O..	" ..	
Dobbin's pattern, self-righting and bailing.	600	Goderich, Ont..	" ..	Removed from Popular Point in 1900.
" ..	750	" ..	" ..	Removed from Wellington in 1893.
Beebe-McLellan surf-boat, self-Bailing.	330	Collingwood, O.	" ..	

the Dominion Government, where there is a life-saving service of more or less importance, such as Halifax, Victoria, B.C., maintained by the Victoria Life Saving Association.



EXPENDITURE IN LIFE-SAVING SERVICE TO MARCH 31, 1911.

General account.. . . . .	\$11,179 53
<i>Nova Scotia—</i>	
Baker's cove.. . . . .	283 22
Blanche.. . . . .	324 40
Clark's harbour.. . . . .	346 00
Devil's island.. . . . .	271 00
Duncan's cove.. . . . .	301 25
Halifax.. . . . .	196 13
Herring cove.. . . . .	276 00
Pictou.. . . . .	404 90
Port Mouton.. . . . .	277 90
Scatarie.. . . . .	345 00
Seal island.. . . . .	687 50
Whitehead.. . . . .	271 00
Westport.. . . . .	365 00
Canso.. . . . .	358 77
Grand Entry.. . . . .	584 89
<i>Prince Edward Island—</i>	
Alberton.. . . . .	171 52
Charlottetown.. . . . .	297 55
Cascumpeque.. . . . .	208 29
Priest Pond.. . . . .	396 68
Souris.. . . . .	306 55
<i>New Brunswick—</i>	
Escuminac.. . . . .	1,460 42
Grand Manan.. . . . .	90 00
Richibucto... . . . .	374 60
Little Wood island.. . . . .	6,680 56
<i>Ontario—</i>	
Cobourg.. . . . .	570 00
Collingwood... . . . .	304 34
Goderich.. . . . .	470 71
Kincardine... . . . .	299 03
Long Point.. . . . .	2,799 97
Pelee.. . . . .	1,838 25
Port Hope.. . . . .	341 78
Port Rowan.. . . . .	488 55
Port Stanley.. . . . .	327 89
Toronto.. . . . .	562 39
Weller's bay.. . . . .	389 93
Southampton... . . . .	220 50
<i>British Columbia—</i>	
Banfield.. . . . .	10,074 02
Clayoquot... . . . .	4,196 30
Cloose.. . . . .	120 00
Seven Mile creek.. . . . .	225 02
Ucluelet.. . . . .	5,119 25
<hr/>	
Total expenditure to March 31, 1911.. . . . .	55,406 59



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## APPENDIX No. 16.

## LIVE STOCK SHIPMENTS.

List of shipments of live stock from St. John, N.B., during season of 1910-11.

Months	Sheep.	Cattle.	Horses.	U. S. Cattle.
1910.				
December . . . . .		1,225		1,150
1911.				
January . . . . .				
February . . . . .	1,499	76	9	76
March . . . . .	1,009	626		626
April . . . . .		1,374	10	689
	2,598	3,301	19	2,541

DIFFERENT Ocean Lines by which live stock was shipped, during the season of 1910-11, from St. John, N.B.

Steamer.	Sheep.	Cattle.	Horses.
Athenia . . . . .		111	
Canadian Pacific . . . . .	2,508	2,809	
Cassandra . . . . .			9
Donaldson . . . . .			10
Manchester . . . . .		381	
	2,508	3,301	19

DIFFERENT Ocean Lines by which stock was shipped from the Port of Montreal, during season of 1910.

Steamers.	Sheep.	Cattle.	Horses.
Allan Line . . . . .		5,618	11
Athenia . . . . .		1,685	11
British and North Atlantic Line . . . . .		12,878	
Cairn Line . . . . .		12,577	
Canadian Pacific Railway . . . . .		28,019	31
Cassandra . . . . .		1,200	3
Domnion . . . . .		698	
Donaldson . . . . .		4,654	35
Manchester . . . . .		4,684	
Parthania . . . . .		524	
Elder Dempster . . . . .			280
Sir Alfred N. Jones Line . . . . .	248	18	
	248	72,555	47



RECORD of Live Stock shipped from the Port of Montreal during season of 1910.

Months.	Sheep.	Cattle.	Horses.	U. S. Cattle.
May.....		6,966	27	
June.....		8,067	12	
July.....		12,731	101	33
August.....	83	12,551	132	
September.....		10,466	13	
October.....	167	12,177	20	14
November.....		9,597	192	132
	248	72,555	497	179

United States cattle included in the total of 72,555, Three hundred and seventy-eight mules included in the total of (497 horses).

COMPARATIVE STATEMENT of the number of Cattle shipped from Canada to British ports from the years 1902-3 to 1910-11.

	SHEEP.			CATTLE.			HORSES.			TOTALS.		
	Montreal.	St. John.	Halifax.	Montreal.	St. John.	Halifax.	Montreal.	St. John.	Halifax.	Sheep.	Cattle.	Horses.
1910-11...	248	2,508	Nil	72,555	3,301	Nil	497	19	Nil	2,756	75,856	516
1909-10...	1,616	Nil	"	94,314	4,632	"	286	Nil	"	1,616	98,946	286
1908-9....	10,111	151	"	99,830	22,923	3,097	116	65	"	10,262	125,850	181
1907-8....	11,585	4,168	"	96,977	20,210	Nil	174	51	"	15,753	127,187	225
1906-7....	10,791	1,371	"	128,160	31,148	"	661	57	"	12,162	159,308	718
1905-6....	19,077	3,971	"	126,871	33,543	1,042	568	79	"	23,048	161,456	647
1904-5....	49,422	17,283	"	108,553	33,833	745	279	213	"	66,715	143,131	492
1903-4....	57,741	23,428	1,475	133,594	25,855	5,456	361	31	31	82,644	164,905	423
1902-3....	61,017	19,310	426	147,201	37,453	3,856	373	115	17	80,753	188,510	503



APPENDIX No. 17.

SIGNAL SERVICE, CANADA.

CITADEL SIGNAL STATION.

RECORD of Shipping as per record folio, from April 1, 1910 to March 31, 1911.

Months.	Men of War, British.			Men of War, Foreign.			Steamers, 1st Class.			Steamers, 2nd Class.			Ships, Barques and Barquentines.			Brigs and Brigantines.			Schooners, 3 mast or bearing Pt. Signal.			Monthly Totals.		
	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.
1910-1911.																								
April.....							54	54	...	33	33	...	3	3	...				2	2	...	92	92	...
May.....	2	2					40	40	..	57	57	...	2	2	...				7	7	...	108	108	...
June....							46	45	1	62	62	...	2	2	...				6	6	...	16	15	1
July.....							49	48	1	70	70	...	1	1	...				6	6	...	126	125	1
August.....							62	58	4	73	73	...	2	2	...	1	1	..	7	7	...	145	141	4
September..							55	52	3	66	66	..				1	1	...	15	14	1	137	133	4
October.....	*1	1					50	49	1	60	60	...				2	1	1	11	11	...	124	122	2
November..	2	2					51	50	1	65	65	...				1	1	...	5	5	...	124	123	1
December..							58	58	..	59	59	...							15	15	...	132	132	...
January....							60	59	1	36	36	...							3	3	...	99	98	1
February..							55	55	...	24	24	...							4	4	...	83	83	...
March.....							74	74	...	34	34	...	1	1	...				4	4	...	113	113	...
Totals....	5	5					654	642	12	639	639	...	11	11	...	5	4	1	85	84	1	1399	1385	1

Total vessels reported..... 1,399  
" arrived..... 1,385  
" passed..... 14

HALIFAX, N.S., April 4, 1911.

P. S. BENOIT, Capt. R.C.E.,  
Superintendent of Signals.



## APPENDIX No. 18.

## SABLE ISLAND.

SABLE ISLAND, December 28, 1910.

To CHARLES H. HARVEY, ESQ.,  
Agent Marine and Fisheries,  
Halifax, N.S.

SIR,—The following report is submitted for the year 1910:—

## WRECKS AND CASUALTIES.

June 18.—Norwegian steamship *Heindal*, 1,857 tons, Capt. Gabrulsen, from Santos to New Brunswick, struck south side, 4 miles east of No. 1 station; crew saved. Efforts to refloat her were not successful and she became a total loss.

December 5.—An unknown schooner ran on the N.W. wet bar during the afternoon. Got off again without assistance.

## BOATS AND APPARATUS.

No change in the condition or position of boats since last reported. A new 'Beebe-McLellan' lifeboat was received late in the year, to replace the *Grace Darling* condemned.

## PATROL.

The island was patrolled on service 97 times. Sixty-three times in the morning, and 34 times at night.

## STAFF CHANGES.

Douglas Henneberry succeeded Reuben Naugle as keeper of No. 2 station in April. Walter Blank succeeded A. J. Horne as keeper of west end light on July 2. Blank was succeeded by John Edwards, October 20.

## BUILDING AND REPAIRS.

*No. 1 Station.*—Concrete wall built under south end of cattle barn; also concrete manure pit.

Small boathouse, 12' by 24' built near lake to accommodate small boats used in the lake.

*West Light.*—Tower painted two coats. New sill under barn and general repair. Oil house repaired and some small repairs to dwelling.

*No. 3 Station.*—Some general repairs to all buildings.

## FARMING.

A wet season gave good crops in nearly everything planted. Potatoes were especially good, both in quality and yield. Cultivated hay was also very fine, as was also the wild hay, and sufficient was made, with the addition of a carload sent from Halifax, to supply the stock.



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*Live stock on hand—*

65 head cattle.  
 30 trained horses.  
 1 imported stallion  
 4 imported mares.  
 6 hogs.  
 200 wild ponies.

*Stock killed—*

6 beeves weighing 3,881 lbs.  
 13 hogs weighing 2,124 lbs.

*Shipped—*

116 barrels cranberries.  
 30 ponies to Newfoundland.  
 6 ponies to Halifax. One returned.  
 5 barrels salted hides.  
 1 cask oil.

*Salved by ex-SS. 'Skidby'—*

23 tons of coal.

Teaming was done for the Halifax Wrecking Co., also for Chas. Brister & Son, Ltd., in connection with the salving operations on SS. *Heindal*.

## CENSUS, DECEMBER 28, 1910.

*No. 1 Station.*—Supt. R. Boutilier and family, 3; Carpenter, Wm. Byrne; Cook, Jos. Thompson; Supernumerary, J. Dunne; Boatmen, M. Noonan, A. Whare, E. McGrath, V. Horne, A. Dunsworth, 8—11.

*No. 2 Station.*—Keeper, Douglass Henneberry; Asst. Allan Henneberry—2.

*No. 3 Station.*—Keeper, Stewart Glazebrook and family, 3; Assistant, Alex. Henneberry, 1—4.

*No. 4 Station.*—Keeper, Gustav Soderburg and wife, 2; Ernest DeYoung, 1—3.

*East Light.*—John Gregoire and family, 6; Assistant, Henry Naugle, 1—7.

*West Light.*—John Edwards and family, 5; Assistant, James Horne, 1—6.

*Marconi Wireless Station.*—Newman, P. Healey, G. Watson, A. Gardner; Cook, W. White—5.

Total—38.

R. BOUTILIER,  
*Superintendent, Sable Island.*



APPENDIX No. 19.

MASTERS AND MATES' CERTIFICATES.

During the twelve months ended March 31, 1911, the following grades of certificates were issued to masters and mates:—19 masters', 12 mates' and 14 second mates' sea-going certificates of competency; 74 masters' and 50 mates' coasting certificates of competency; 36 masters' and 40 mates' inland waters certificates of competency; 50 masters' and 35 mates' minor inland waters certificates of competency; 1 master's coasting certificate of service; and 22 masters' temporary certificates.

The total amount collected in the way of fees for certificates during the twelve months ended March 31, 1911, was \$4,446.61 and the amount expended on account of this service was \$5,801.62, an excess of expenditure over receipts of \$1,355.01.

The following statement shows the total receipts and expenditures on account of masters and mates during the last ten years.

			Expenditure.	Receipts.
			\$ cts.	\$ cts.
For the fiscal year ended June 30	1902.....		3,305 59	5,288 52
" "	1903.....		4,968 36	5,790 50
" "	1904.....		7,761 17	4,795 00
" "	1905.....		5,884 74	4,643 85
" "	1906.....		7,068 15	5,526 00
" ended March 31	1907 (nine months).....		5,934 16	2,294 50
" "	1908.....		11,508 31	4,306 05
" "	1909.....		8,244 56	4,192 50
" "	1910.....		6,662 52	4,314 50
" "	1911.....		5,801 62	4,446 61
Expenditure.....			67,139 18	45,598 03
Receipts.....			45,598 03	
Excess of expenditure over receipts.....			21,541 15	



## SESSIONAL PAPER No. 21

LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1910.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1909					\$
5754	April 1	Alexander Brown.....	Mate..	Owen Sound, Ont. ....	Windsor, Ont. ....	6 00
5755	" 1	Harve Alton Irving.....	"	Hamilton, Ont. ....	"	6 00
5756	" 1	William Taylor.....	"	Waubuno, Ont. ....	"	6 00
5757	" 1	George A. Davis.....	Master.....	Smith's Falls, Ont. ....	Ottawa, Ont. ....	15 00
5758	" 1	Jas. Eldridge McDonald..	"	Esquimalt, B.C. ....	Victoria, B.C. ....	15 00
5759	" 1	John Alexander Orr.....	"	Jardineville, N.B. ....	Yarmouth, N.S. ....	15 00
5760	" 1	Stephen Patrick Ahern..	"	Port Dalhousie, Ont. ....	Toronto, Ont. ....	15 00
5761	" 1	Wm. Matthew Thomas..	"	Port Robinson, Ont. ....	"	15 00
5762	" 1	Robert Scott Misner....	"	Sault Ste. Marie, Ont. ....	Collingwood, Ont. ....	15 00
5763	" 1	Clement E. Miller ..	"	Halifax, N.S. ....	Halifax, N.S. ....	15 00
5764	" 1	Albert John Moran. ....	Mate.....	"	"	6 00
5765	" 1	Hector McLean.....	"	Maxwell, Ont. ....	Collingwood, Ont. ....	6 00
5766	" 1	Ovila Seguin ..	"	Hudson Heights, P.Q.	Ottawa, Ont. ....	6 00
5767	" 1	Harry Robert Storey....	"	Collingwood, Ont. ....	Collingwood, Ont. ....	6 00
5768	" 1	Wm. Lawrence Yates....	"	Vancouver, B.C. ....	Vancouver, B.C. ....	6 00
5769	" 1	Otto Ludlow Estabrooks..	"	Okanagan, Landing. ....	"	6 00
5770	" 1	Henry Clarke ..	"	Waupoo East, Ont. ....	Toronto, Ont. ....	6 00
5771	" 1	Alfred Edward Fraser....	"	Kewatin. ....	West Selkirk, Man. ....	6 00
5772	" 1	Chas. Ashley Murdoch..	"	Sherbrooke, N.S. ....	Halifax, N.S. ....	6 00
5773	" 1	Wm. F. Nuttall.....	Master.....	Port Arthur, Ont. ....	Port Arthur, Ont. ....	15 00
5774	" 1	Imrie Andrew Thompson..	"	"	"	15 00
5775	" 1	Angus Gordon Mackay..	Mate.....	Owen Sound, Ont. ....	Toronto, Ont. ....	6 00
5776	" 1	Thos. Francis Murphy..	Master..	Elgin, Leeds, Ont. ....	Collingwood, Ont. ....	15 00
5777	" 1	Robert Edwin Nuttall..	"	Port Arthur, Ont. ....	Port Arthur, Ont. ....	15 00
5778	" 1	George Philemon Stitt..	"	Fort William, Ont. ....	"	15 00
5779	" 1	Angus Morrison.....	"	Port Arthur, Ont. ....	"	15 00
5780	" 1	Edward McDonald.....	"	"	"	15 00
5781	" 1	Harry Friday ..	Mate.....	"	"	6 00
5782	" 1	John Edward Bradden..	Master..	Kingston, Ont. ....	"	15 00
5783	" 1	Joseph Frillay ..	"	Port Arthur, Ont. ....	"	15 00
5784	" 1	Wm. C. Thompson.....	"	"	"	15 00
5785	" 1	Oswald Marin ..	"	"	"	15 00
5786	" 1	Francis John Ames. ....	Master (temp. cert.)	Muskoka, Ont. ....	Collingwood, Ont. ....	5 00
5787	" 1	Joseph Harris Daball...	Master (temp. cert.)	Parry Sound, Ont. ....	"	5 00
5788	" 26	James Godin ..	Master..	Dalhousie, N.B. ....	Charlottetown, P.E.I. ....	15 00
5789	" 26	Alexander Geddes ..	Mate.....	Hamilton, Ont. ....	Windsor, Ont. ....	6 00
5790	" 30	Dougald McIntyre ..	Master.....	Owen Sound, Ont. ....	Collingwood, Ont. ....	15 00
5791	" 30	Joseph E. Ouellette.....	Mate.....	Lachine, P.Q. ....	Montreal, P.Q. ....	6 00
5792	" 30	William McGrath. ....	Master.....	Port Wade, N.S. ....	Yarmouth, N.S. ....	15 00
5793	" 30	Thomas Neville.....	"	Collingwood, Ont. ....	Collingwood, Ont. ....	15 00
5794	" 30	Brenton Young.....	"	Summerville, N.S. ....	Yarmouth, N.S. ....	15 00
5795	" 30	William Apt ..	"	Granville Ferry, N.S. ....	"	15 00
5796	" 30	William C. Lediard.....	"	Midland, Ont. ....	Toronto, Ont. ....	15 00
5797	" 30	James Dixon ..	"	Port Dalhousie, Ont. ....	"	15 00
5798	" 30	Ernest A. Johnson.....	"	L'Orignal, P.Q. ....	Montreal, P.Q. ....	15 00
5799	" 30	Malcolm F. MacDonald ..	"	Vancouver, B.C. ....	Vancouver, B.C. ....	15 00
5800	" 30	Charles A. Britton.....	Master (temp. cert.)	Sturgeon Falls, Ont. ....	Toronto, Ont. ....	5 00
5801	" 30	William Taylor.....	Master.....	Bellerran, Newfld. ....	Port Arthur, Ont. ....	15 00
5802	" 30	James A. Cuthbert.....	Mate.....	Lakeport, Ont. ....	Toronto, Ont. ....	6 00
5803	" 30	John Albert Scott ..	Master.....	Victoria Harbor, Ont. ....	"	15 00
5804	" 30	George James Vent.....	"	"	"	15 00
5805	" 30	Wilford Jewitt ..	"	Penetanguishene, Ont. ....	Collingwood, Ont. ....	15 00
5806	" 30	"	Mate.....	"	"	6 00
5807	" 30	Christopher L. Allen....	Master ..	Port Dalhousie, Ont. ....	Windsor, Ont. ....	15 00
5808	" 30	Joseph John Walsh.....	"	Young's Point, Ont. ....	Ottawa, Ont. ....	15 00
5809	" 30	Thomas E. Jones....	Mate.....	Sault Ste. Marie, Ont. ....	Windsor, Ont. ....	6 00
5810	" 30	Addison S. Hayward....	Master.....	Wallaceburg, Ont. ....	"	15 00
5811	" 30	John Halcolm Allen.....	Mate.....	Sarnia, Ont. ....	"	6 00
5812	" 30	Matthew C. McCaw.....	Master.....	North Bay, Ont. ....	Collingwood, Ont. ....	15 00
5813	" 30	Charles Kane.....	"	Halifax, N.S. ....	Yarmouth, N.S. ....	15 00
5814	" 30	John Thomas McLaine..	"	Charlottetown, P.E.I. ....	Charlottetown, P.E.I. ....	15 00



2 GEORGE V., A. 1912

LIST of certificates of competency issued to masters and mates of inland and coasting vessels, during the twelve months ended 31st March, 1910—*Continued.*

No. of Certificate	Date of Certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1909					\$
5815	April 30	Joseph Henry Glass.....	Mate.....	Sarnia, Ont.....	Windsor, Ont.....	6 00
5816	" 30	Malcolm McKinnon.....	Master.....	Nelson, B.C.....	Victoria, B.C.....	15 00
5817	" 30	Angus D. McDonald.....	".....	Canso, N.S.....	North Sydney, N.S.....	15 00
5818	" 30	Henri Caza.....	Master.....	Cornwall, Ont.....	Ottawa, Ont.....	15 00
5819	" 30	Thomas Arthur Brown.....	Mate.....	Southampton, Ont.....	Windsor, Ont.....	6 00
5820	" 30	Robert Wilson.....	".....	Vancouver, B.C.....	Vancouver, B.C.....	6 00
5821	" 30	Isaac Butler.....	Master.....	".....	Vancouver, B.C.....	15 00
5822	" 30	William J. Merchant.....	Mate.....	Pembroke, Ont.....	Ottawa, Ont.....	6 00
5823	" 30	James Warner Rigney.....	Master.....	Sarnia, Ont.....	Windsor, Ont.....	15 00
5824	" 30	David A. Chambers.....	Mate.....	Courtwright, Ont.....	Windsor, Ont.....	6 00
5825	" 30	Herbert James Aitken.....	".....	".....	Windsor, Ont.....	6 00
5826	" 30	John Vautier.....	Master.....	North Sydney, N.S.....	North Sydney, N.S.....	15 00
5827	" 30	Hugh Allan Cameron.....	".....	Keewatin, Ont.....	West Selkirk, Man.....	15 00
5828	" 30	Abel Pearce.....	Mate.....	Strathcona, Alta.....	Edmonton, Alta.....	6 00
5829	" 30	Samuel Duvall.....	".....	Young's Point, Ont.....	Toronto, Ont.....	6 00
5830	" 30	William Cook.....	Master, (temp. cert.).....	Granville, Ont.....	Ottawa, Ont.....	5 00
5831	" 30	Telesphore Martin.....	Master, (temp. cert.).....	Point Fortune, Que.....	Montreal, P.Q.....	5 00
5832	" 30	Sidney Smith.....	Master, (temp. cert.).....	Port Arthur, Ont.....	Kenora, Ont.....	5 00
5833	" 30	Thomas Binnie.....	Master, (temp. cert.).....	".....	Kenora, Ont.....	5 00
5834	May 12	Lambert Pilon.....	Master, (temp. cert.).....	Grenville, Que.....	Ottawa, Ont.....	5 00
5835	" 17	Howard Lord.....	Mate.....	Fryon, P.E.I.....	Charlottetown, P.E.I.....	6 00
5836	" 17	Julian Jacobson.....	Master.....	Prince Albert, Sask.....	Edmonton, Alta.....	15 00
5837	" 17	William N. Coughlin.....	".....	Summerside, P.E.I.....	Charlottetown, P.E.I.....	15 00
5838	" 17	Oliver G. Kinnie.....	Mate.....	Vancouver, B.C.....	Vancouver, B.C.....	6 00
5839	" 17	Angus Allord.....	Master.....	Restigouche, N.B.....	St. John, N.B.....	15 00
5840	" 17	Delbert D. Clayton.....	".....	St. John, N.B.....	St. John, N.B.....	15 00
5841	" 17	Burpee A. Barton.....	".....	Range Queens Co. N.B.....	St. John, N.B.....	15 00
5842	" 17	Howard B. Golding.....	".....	St. John, N.B.....	St. John, N.B.....	15 00
5843	" 17	Charles D. MacLean.....	".....	Chatham, N.B.....	Halifax, N.S.....	15 00
5844	" 17	Charles T. Livingstone.....	".....	St. John, N.B.....	St. John, N.B.....	15 00
5845	" 17	Bernard Dolan.....	".....	Annapolis, N.B.....	Halifax, N.S.....	15 00
5846	" 17	Charles Alex Webster.....	Mate.....	Lion's Head, Ont.....	Windsor, Ont.....	6 00
5847	" 17	James Caufield.....	Master.....	Westminster, B.C.....	Vancouver, B.C.....	15 00
5848	" 17	Angus McLeod.....	Mate.....	Proctor, B.C.....	Nelson, B.C.....	6 00
5849	" 17	Alban Robineau.....	Master.....	Montreal, P.Q.....	Montreal, P.Q.....	15 00
5850	" 17	Edward Miller.....	Master, (temp. cert.).....	Peninsula, P.Q.....	Ottawa, Ont.....	5 00
5851	" 17	John Standly.....	Master, (temp. cert.).....	Banff, Alta.....	Kenora, Ont.....	5 00
5852	" 17	John Cunningham.....	Master, (temp. cert.).....	Gaudette, P.Q.....	Ottawa, Ont.....	5 00
5853	" 17	Phidime Hamel.....	Master.....	Ste. Jean des Chailons, P.Q.....	Ottawa, Ont.....	15 00
5854	June 8	Thomas Bell.....	Mate.....	Victoria, B.C.....	Victoria, B.C.....	6 00
5855	" 8	Wilfrid DeMontigny.....	Master, (temp. cert.).....	Montreal, P.Q.....	Montreal, P.Q.....	5 00
5856	" 8	John Boden.....	Master.....	Vancouver, B.C.....	Vancouver B.C.....	15 00
5857	" 8	John Thompson.....	".....	Rexton, N.B.....	Charlottetown, P.E.I.....	15 00
5858	" 8	James Hunter.....	Mate.....	Victoria, B.C.....	Victoria, B.C.....	6 00
5859	" 8	Thomas Thomson.....	Master.....	".....	Victoria, B.C.....	15 00
5860	" 8	James McGuire.....	".....	Amherstburg, Ont.....	Windsor, Ont.....	15 00
5861	" 8	Willis Balcom.....	".....	Victoria, B.C.....	Victoria, B.C.....	15 00
5862	" 8	John Joseph Smith.....	Mate.....	Kamloops, B.C.....	Vancouver, B.C.....	6 00
5863	" 8	Frank Wm. Broughton.....	Master.....	Harrop's, B.C.....	Nelson, B.C.....	15 00
5864	" 8	William G. Bartley.....	Mate.....	Fort Frances, Ont.....	West Selkirk, Man.....	6 00
5865	" 8	John Joseph Moore.....	".....	Victoria, B.C.....	Victoria, B.C.....	6 00



## SESSIONAL PAPER No. 21

LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1910—*Continued.*

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1909					\$
5866	June	8 Thomas Cliffe.....	Mate.....	Victoria, B.C. .	Victoria, B.C.....	6 00
5867	"	8 William Henry Wilson.	".....	Hamilton, Ont., .	Ottawa, Ont.....	6 00
5868	"	8 Robert Fullerton.....	Master.....	Toronto, Ont.....	Toronto, Ont.. .	15 00
5869	"	8 Israel Desfarge.....	Master, (temp. cert.).....	Calumet, P.Q. ....	Ottawa, Ont ....	5 00
5870	"	8 Thomas Christinson.....	Master, (temp. cert.).....	Wako, Ont.....	Kenora, Ont.. .	5 00
5871	"	18 Joseph Arthur Larochelle	Master.. ....	Mattawa, Ont...	Temiscaming, Que	15 00
5872	"	18 Ritchie Roy Spicer... ..	".....	Vancouver, B.C. .	Vancouver, B.C...	15 00
5873	"	18 George W. Blanchard...	".....	Toronto, Ont.....	Toronto, Ont.. .	15 00
5874	"	18 Thomas Robinson .....	".....	Kenora, Ont.....	West Selkirk, Man	15 00
5875	"	18 George D. de Teissier Prevost. ....	Mate.....	Vancouver, B.C.....	Vancouver, B.C. .	6 00
5876	"	18 David Bourgault .....	Master.....	St. Roch des Aulnets, P.Q. ....	Ottawa, Ont.....	15 00
5877	"	18 Napoleon Roy.....	Master, (temp. cert.).....	Wako, Ont.....	Kenora, Ont.....	5 00
5878	July	14 William P. Tinkiss.....	Mate.....	Uffington Village, Ont.	Ottawa, Ont.....	6 00
5879	"	14 James Russell.....	Master, (temp. cert.).....	Wyebridge Village, Ont	Collingwood, Ont.	5 00
5880	"	14 Herbert Mose Parent...	Mate.....	Windsor, Ont. ....	Windsor, Ont...	6 00
5881	"	14 Cyril Godfrey Hilder...	Master.....	Port Haney, B.C.....	Vancouver, B.C. .	15 00
5882	July	14 John Franklin Edwards.	Master.. ....	Vancouver, B.C.....	Vancouver, B.C. .	15 00
5883	"	14 Hugh Harry Bostock....	Master, (temp. cert.).....	West Selkirk, Man. .	West Selkirk, Man.	15 00
5884	"	14 Horatio H. Brannen ....	Master.....	Clark's Harbour, N.S..	Yarmouth, N.S....	15 00
5885	"	14 Donald Russell Fraser..	Mate.....	Rosseau, Ont.....	Collingwood, Ont.	6 00
5886	"	14 Robert R. Russell .....	Master.....	Digby, N.S. ....	Yarmouth, N.S....	15 00
5887	"	14 Walter Robson. ....	".....	Vancouver, B.C. ....	Vancouver, B.C...	15 00
5888	"	14 ".....	Mate.....	".....	Vancouver, B.C...	6 00
5889	"	14 William Henry Hall ....	Master...	Winnipeg, Man.	Selkirk, Man.....	15 00
5890	"	14 Daniel M. MacDonald ..	".....	South Gut C.B., N.S	North Sydney, N.S	15 00
5891	"	14 James Laurence .....	Mate.....	Vancouver, B.C.....	Vancouver, B.C...	6 00
5892	"	14 Peter Boyer.....	Master, (temp. cert.).....	Penetang, Ont.....	Collingwood, Ont.	5 00
5893	"	19 Angus Rudolph.....	Master.....	Halifax, N.S.....	Halifax, N.S.....	15 00
5894	"	23 Nelson W. Miner.....	Mate.....	Dillonport, Ont. ....	Collingwood, Ont..	6 00
5895	Aug.	4 Alva Morley Snider.....	Master.....	Vancouver, B.C.	Vancouver, B.C...	15 00
5896	"	4 Henry V. Matthews.....	".....	Lockport, N.S.....	Yarmouth, N.S....	15 00
5897	"	4 Francis Thomas Dodds..	Master, (temp. cert.).....	Kenora, Ont. ....	Kenora, Ont ....	5 00
5898	"	4 Joseph Octave Blondin..	Master.....	Haileybury, Ont. .	Ottawa, Ont.....	15 00
5899	"	4 Alexander McLean.....	".....	Loggieville, N.B. .	Charlottetown, P.E.I.	15 00
5900	"	7 Robert Alex. MacLean..	".....	Chatham, N.B.....	Charlottetown, P.E.I.	15 00
5901	"	13 Robert Thomas Drever..	Mate.....	Vancouver, B.C.....	Vancouver, B.O..	6 00
5902	"	13 Cyril H. McAlpine.....	".....	Winnipeg, Man.....	West Selkirk, Man	6 00
5903	"	13 John Morel, Jr.....	Master, (temp. cert.).....	St. Henri de Taillon, P.Q. ....	Montreal, P.Q.....	5 00
5904	"	13 Charles E. Dawson.....	Master, (temp. cert.).....	Montreal, P.Q.....	".....	5 00
5905	"	13 Frederick H. Hickey....	Master, (temp. cert.).....	Peterboro, Ont.....	Collingwood, Ont..	5 00
5906	"	13 Wallace H. Smith....	Master.....	Parrsboro, N.S. ....	Yarmouth, N.S.	15 00
5907	"	23 Job A. Crowell.....	".....	Clark's Harbour, N.S.	".....	15 00
5908	Sept.	9 Henry Hingley.....	".....	Port Hillford, N.S....	Halifax, N.S....	15 00
5909	"	9 Arthur Goreham.....	".....	Woods Harbour, N.S.	Yarmouth, N.S.	15 00
5910	"	9 Gilbert A. Ward.....	".....	Sapperton, B.C. ....	Vancouver, B.C.	15 00
5911	"	9 John Baillies.....	Mate.....	Vancouver, B.C. ....	".....	6 00
5912	"	9 John James McPhee....	Master.....	Victoria, B.C.....	Victoria, B.C.....	15 00
5913	"	9 Auston Christian.....	".....	Halifax, N.S.....	Yarmouth, N.S. .	15 00
5914	"	9 Edouard Valois .....	".....	St. Ignace de Loyola, P.Q.	Ottawa, Ont ..	15 00
5915	"	9 James Carmichael.....	".....	raeside, Ont.....	".....	15 00



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LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911—*Continued.*

No. of certi- cate.	Date of certi- ficate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1909.					\$
5916	Sept. 9	Jean Bapt. Belanger....	Master.....	Mattawa, Ont.....	Ottawa, Ont.....	15 00
5917	" 9	Ithamar Stephens. ....	" .....	Lockeport, N.S.....	Yarmouth, N.S. ..	15 00
5918	" 9	William McPhee.....	" .....	Sambro, N.S.....	Halifax, N.S.....	15 00
5919	Oct. 6	William Dexter Pyke....	Master, (temp. cert.)	O'Brien.....	Kenora, Ont. ....	5 00
5920	" 6	James M. Shackleton. . .	Master, (temp. cert.)	Dryden, Ont....	" .....	5 00
5921	" 6	Robert Henry Trachsler.	Mate.....	Vancouver, B.C.....	Victoria, B.C.....	6 00
5922	" 6	Harry Stewart Hughes..	Master.....	Victoria, B.C.....	Vancouver, B.C..	15 00
5923	" 6	Thomas H. Johnston....	" .....	Port Dalhousie, Ont..	Windsor, Ont.....	15 00
5924	" 6	Angure Langelier.....	Mate.....	L'Islet, P.Q.....	Montreal, P.Q.....	6 00
5925	" 6	Henry A. McCarthy.....	Master.....	Arrowhead, B.C.....	Victoria, B.C.....	15 00
5926	" 6	Edward Keans.....	" .....	Port Wade, N.S. ....	Yarmouth, N.S....	15 00
5927	" 8	Simeon Wooden.....	Mate.....	Halifax, N.S.....	Halifax, N.S.....	6 00
5928	" 11	John Linton Tough.....	" .....	Vancouver, B.C.....	Vancouver, B.C..	6 00
5929	" 22	William E. Cates.....	Master.....	Vancouver, B.C.....	Victoria, B.C.....	15 00
5930	" 22	Robie Hebert Frellick...	" .....	Hunt's Point, N.S....	Halifax, N.S.....	15 00
5931	" 22	Frank K. Crosby.....	" .....	Yarmouth, N.S.....	Yarmouth, N.S....	15 00
5932	" 22	Herbert N. McMaster...	Mate.....	Toronto, Ont.....	Montreal, P.Q.....	6 00
5933	Nov. 3	William L. MacLeod....	" .....	Halifax, N.S. ....	North Sydney, N.S.	6 00
5934	" 3	James Thoburn.....	Master.....	East Jordan, N.S.....	Halifax, N.S. ....	15 00
5935	" 3	James Schmeisser.....	Mate.....	Middle La Have, N.S..	Yarmouth, N.S....	6 00
5936	" 3	Gabriel D. Pentz . ....	" .....	West La Have, N.S....	" .....	6 00
5937	" 3	John William Meyer....	" .....	Orme Gardens, England	Vancouver, B.C....	6 00
5938	Dec. 14	Nils Sture Nilson.....	Master..	Victoria, B.C.....	Victoria, B.C.....	15 00
5939	" 14	Donald McKay.....	Mate .....	Caribou, Y.T.....	" .....	6 00
5940	" 14	Alfred Elmer Lewis.....	" .....	Victoria, B.C. ....	" .....	6 00
5941	" 14	Louis P. D'Entremont...	Master.....	West Pubnico, N.S. . .	Yarmouth, N.S....	15 00
5942	" 14	James Lowe.....	" .....	Clark's Harbour, N.S..	" .....	15 00
5943	" 14	Webster Hamilton.....	" .....	Lower Argyle, N.S....	" .....	15 00
5944	" 14	William B. Smith.....	" .....	West Head, N.S.....	" .....	15 00
5945	" 14	Wm. Francis Howell....	" .....	Thorold, Ont. ....	Ottawa, Ont.....	15 00
5946	" 14	William John Boyce....	Master..	Nanaimo, B.C.....	Victoria, B.C.....	15 00
5947	" 16	Eddie Legault.....	" .....	Ste. Anne de Bellevue, P.Q.	Montreal, P.Q. ....	15 00
	1910.					
5948	Jan. 18	Edward H. McConkey..	" .....	Barrie, Ont. ....	Windsor, Ont.....	15 00
5949	" 18	Francis Thomas Sinnott.	" .....	Penetanguishene, Ont.	" .....	15 00
5950	" 18	Stewart Bain English. . .	" .....	Little Current, Ont...	Collingwood, Ont.	15 00
5951	" 18	John Weston.....	" .....	Rexton, N.B.....	Yarmouth, N.S....	15 00
5952	" 18	Donat Laroche.....	" .....	Sorel, P.Q.....	Montreal, P.Q.....	15 00
5953	" 18	John M. Guild.....	Mate.....	Kingston, Ont.....	" .....	6 00
5954	" 18	William Mainville.....	Master.....	Rockland, Ont....	" .....	15 00
5955	" 18	Barry Alban Sullivan....	Mate.....	Cornwall, Ont.....	" .....	6 00
5956	" 18	Stanley Harris.....	" .....	Victoria, B.C.....	Victoria, B.C....	6 00
5957	" 18	William English.....	Master.....	" .....	" .....	15 00
5958	" 18	James Arthur Goodwin..	" .....	Toronto, Ont. ....	Toronto, Ont. ....	15 00
5959	" 18	Harry Leaney.....	Mate.....	Owen Sound, Ont....	Windsor, Ont.....	6 00
5960	" 18	William Carson.....	Master.....	Midland, Ont.....	" .....	15 00
5961	" 18	Robert Orr McLeod.....	Mate.....	Picton, Ont. ....	Toronto, Ont.....	6 00
5962	" 18	Charles Mahoney.....	" .....	Elgin, Ont.....	Montreal, P.Q....	6 00
5963	" 18	John Fraser.....	Master (temp. cert.)	Parry Harbour, Ont...	Collingwood, Ont.	5 00
5964	Feb. 14	Ernest W. Baker.....	Mate.....	Batteau, Ont. ....	" .....	6 00
5965	" 14	Ernest F. Raeburn .....	" .....	Soo Michigan.....	" .....	6 00
5966	" 14	Frank Ironside.....	" .....	Collingwood, Ont. ....	" .....	6 00
5967	" 14	John W. McCannel.....	Master, ..	" .....	" .....	15 00
5968	" 14	Joshua G. Corson. ....	Mate .....	" .....	" .....	6 00
5969	" 14	William F. Bagley.....	" .....	" .....	" .....	6 00
5970	" 14	Theodore S. Seaman ....	Master (temp. cert.)	Sauble Falls, Ont.....	" .....	5 00
5971	" 14	Neil Samuel Livingstone	Master.....	Collingwood, Ont. ....	" .....	15 00
5972	" 14	John H. Hudson.....	Mate.....	Midland, Ont.....	" .....	6 00
5973	" 14	John Lawrence.....	Master.....	Vancouver, B.C. ....	Vancouver, B.C....	15 00



## SESSIONAL PAPER No. 21

LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911—*Continued.*

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910.					\$
5974	Jan. 14	Austin Levy.....	Master..	New Westminster, B.C.	Vancouver, B.C...	15 00
5975	" 14	".....	Mate.....	"	"	6 00
5976	" 14	Fred Groth.....	"	Vancouver, B.C.....	"	6 00
5977	" 14	Joseph E. Bernier. ....	Master.....	St. Henri, Montreal, P.Q.	Montreal, P.Q. .	15 00
5978	" 14	Arthur John Gibson....	"	Aylmer, P.Q.. .....	"	15 00
5979	" 14	Jean Bapt. Couillard....	"	Beauharnois, P.Q. ....	"	15 00
5980	" 14	Raoul Chatel. ....	Mate.....	St. Zotique, P.Q. . . .	"	6 00
5981	" 14	Onesiphore Scherrer....	"	Cape St. Ignace, P.Q..	"	6 00
5982	" 14	Alcide Caron.....	"	L'Islet, P.Q.....	"	6 00
5983	" 14	Amedee Caron.....	"	"	"	6 00
5984	" 14	Donat Charland.....	Master.....	Sorel, P.Q.....	"	15 00
5985	" 14	Stephen Patrick Ahern..	Mate.....	Port Dalhousie, Ont...	Toronto, Ont	6 00
5986	" 14	Thomas Allen .....	Master. ....	Toronto, Ont.....	"	15 00
5987	" 14	William Stalker.....	Mate.....	Penetang, Ont.....	"	6 00
5988	" 14	Samuel Pearson.....	Master.....	Peterborough, Ont....	"	15 00
5989	" 14	William Copperthwaite.	"	"	"	15 00
5990	" 14	Samuel McCaig.....	"	Toronto, Ont. ....	"	15 00
5991	" 14	Emanuel Ford.....	"	Channel, Newfoundl'd.	North Sydney, N.S.	15 00
5992	" 14	Severin Vignault.....	"	Magdalen Island, P.Q.	Yarmouth, N.S....	15 00
5993	" 14	Colin McLellan.....	Mate.....	Maitland, N.S.....	"	6 00
5994	" 14	Rufus J. Belyea.....	Master.....	St. John, N.B.....	"	15 00
5995	" 14	Alfred Cundick.....	Mate.....	Sombra, Ont.....	Windsor, Ont....	6 00
5996	" 14	Henry Shiltroth .....	"	Owen Sound, Ont. ....	"	6 00
5997	" 14	Henry I. Matthews.....	Master. ....	Lakeport, Ont.....	"	15 00
5998	" 14	John Bernard.....	"	Amherstburg, Ont....	"	15 00
5999	" 14	Frank Charles Granville.	Mate.....	Chatham, Ont.....	"	6 00
6100	" 14	Robert Pyette .....	Master. ....	Owen Sound, Ont.....	"	15 00
6101	" 14	Henry Readfearn... ..	"	Lakeport, Ont.....	"	15 00
6102	" 14	David Henry Porter... ..	Mate.....	Allenford, Ont.....	"	6 00
6103	" 14	Robert R. Elder .....	"	Port Lambton, Ont....	"	6 00
6104	" 14	Joseph Bishop.....	"	Owen Sound, Ont.....	"	6 00
6105	" 14	Frank A. McMann.....	Master.....	Thorold, Ont.....	Collingwood, Ont	15 00
6106	" 14	William F. Bristow....	"	Napanee, Ont.....	"	15 00
6107	" 14	Hugh Stanley McLellan.	"	Vancouver, B.C. . . .	Vancouver, B.C..	15 00
6108	" 14	Wm. Harvey Alexaner..	"	"	"	15 00
6109	" 14	Emanuel Leduc.....	Mate.....	Valleyfield, P.Q. . . .	Ottawa, Ont.....	6 00
6110	Feb. 22	Alexander Wilson.....	Master.....	Sidney, B.C. . . . .	Victoria, B.C....	15
6111	" 22	Alexander F. McLennan	"	Midland, Ont... ..	Collingwood, Ont	15
6112	" 22	John William S. Rutherford.	"	Warton, Ont.....	"	15
6113	" 22	Alfred J. Northcott. ....	Mate.....	Collingwood, Ont.....	"	6
6114	" 22	Beecher P. Powell .....	"	Yarmouth, N.S. . . .	Yarmouth, N.S....	6
6115	" 22	George W. Spears.....	"	Halifax, N.S.....	"	6
6116	" 22	Wilbert Beatty .....	"	Midland, Ont... ..	Collingwood, Ont.	6
6117	" 22	Ruben D. Flower.. ..	Master.....	Gibson, N.B.....	Yarmouth, N.S....	15
6118	" 22	Oscar Patterson.....	Mate.....	Toronto, Ont. ....	Toronto, Ont....	6
6119	" 22	George McIver.....	Master... ..	Port Arthur, Ont. ....	"	15
6120	" 22	Robert Brechin.....	Mate.....	Bruce Mines, Ont.....	"	6
6121	" 22	Charles Ross.....	Master... ..	Dunville, Ont.....	"	15
6122	" 22	John Mullen.....	Mate.....	Kingston, Ont.....	Montreal, P.Q. . .	6
6123	" 22	Thomas Houde .....	Master.. ..	Les Fonds St. Antoine, P.Q.	"	15
6124	" 22	" .....	Mate.....	"	"	
6125	" 22	David Lefave.....	Master.....	Garden Island, Ont....	"	1
6126	" 22	Joseph Forcier .....	"	Montreal, P.Q.....	"	1
6127	" 22	Joseph Brais.. ..	Mate.....	Beauharnois, P.Q.....	"	
6128	" 22	Phidime Fortin.....	"	L'Islet, P.Q.....	"	
6129	" 22	Alexander Cameron.....	"	Parkhill, Ont. ....	Windsor, Ont....	
6130	" 22	Archie Hogue.....	"	Breekeholm, Ont. ....	"	
6131	" 22	Allen Fraser .....	"	Vancouver, B.C.....	Vancouver, B.C..	
6132	Mar. 7	Alfred E. Lewis .....	Master.....	Victoria, B.C.....	Victoria, B.C....	1
6133	" 7	Samuel H. Balcom .....	"	"	"	1
6134	" 7	John Isbister.....	Mate.....	Foster Pier, B.C.....	"	



2 GEORGE V., A. 1912

LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911—*Continued.*

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	When examination was passed.	Fee.
	1910.					\$ cts.
6135	March 7	Edward Walter Gray . . .	Master.. . . .	Victoria, B.C. . . . .	Victoria, B. C . . .	15
6136	" 7	Edward L. Knight. . . . .	" . . . . .	Collingwood, Ont. . . . .	Collingwood, Ont.	15
6137	" 7	Frank B. Cameron. . . . .	Mate. . . . .	" . . . . .	" . . . . .	6
6138	" 7	James C. Putman. . . . .	" . . . . .	Sombra, Ont. . . . .	Windsor, Ont. . . . .	6
6139	" 7	Walter S. Campbell. . . . .	Master. . . . .	Owen Sound, Ont. . . . .	" . . . . .	15
6140	" 7	Nathaniel Barrett. . . . .	" . . . . .	" . . . . .	" . . . . .	15
6141	" 7	William C. McLaren. . . . .	" . . . . .	Port Dalhousie, Ont. . . . .	" . . . . .	15
6142	" 7	Fred Kent. . . . .	Mate. . . . .	Owen Sound, Ont. . . . .	" . . . . .	6
6143	" 7	Ulric Blais . . . . .	Master. . . . .	Lanoraie, P.Q. . . . .	Montreal, P.Q. . . . .	15
6144	" 7	Zenon Gosselin . . . . .	Mate. . . . .	Montreal, P.Q. . . . .	" . . . . .	6
6145	" 7	Marcedonne Cournoyer. . . . .	Master. . . . .	" . . . . .	" . . . . .	15
6146	" 7	David Combe. . . . .	Mate. . . . .	Vancouver, B.C. . . . .	Vancouver, B.C.	6
6147	" 7	James A. Hughes. . . . .	Master. . . . .	Charlottetown, P.E.I. . . . .	Charlottetown, P.E.I.	15
6148	" 7	James S. Crouse . . . . .	Mate. . . . .	Conquevall Bank, N.S. . . . .	Lunenburg, N.S. . . .	6
6149	" 7	James B. Poole. . . . .	" . . . . .	North Sydney, N.S. . . . .	North Sydney, N.S.	6
6150	" 7	Leopold Lavigne . . . . .	Master. . . . .	Ottawa, Ont. . . . .	Ottawa, Ont. . . . .	15
6151	" 7	Otto Johnson . . . . .	" . . . . .	Toronto, Ont. . . . .	Toronto, Ont. . . . .	15
6152	" 7	John William Redner. . . . .	" . . . . .	Belleville, Ont. . . . .	" . . . . .	15
6153	" 7	David W. Burke . . . . .	" . . . . .	Penetanguishine, Ont. . . . .	" . . . . .	15
6154	" 7	Charles H. Casselman. . . . .	Mate. . . . .	Morrisburg, Ont. . . . .	" . . . . .	6
6155	" 7	Harry B. Hunt. . . . .	" . . . . .	Gore Bay, Ont. . . . .	" . . . . .	6
6156	" 7	William J. Bennett. . . . .	Master. . . . .	Sault Ste. Marie, Ont. . . . .	" . . . . .	15
6157	" 7	James A. Fisher. . . . .	" . . . . .	Gore Bay, Ont. . . . .	" . . . . .	15
6158	" 7	Frederick F. Foote. . . . .	Mate. . . . .	Fergus, Ont. . . . .	" . . . . .	6
6159	" 7	Charles S. Niece. . . . .	Master. . . . .	Toronto, Ont. . . . .	" . . . . .	15
6160	" 7	Albert H. Foote . . . . .	Mate. . . . .	Fergus, Ont. . . . .	" . . . . .	6
6161	April 6	Salathiel Herman. . . . .	Master. . . . .	Lunenburg, N. S. . . . .	Halifax, N.S. . . . .	15 00
6162	" 6	Robert S. Orchard. . . . .	Mate. . . . .	St. John, N. B. . . . .	Yarmouth, N. S. . . .	6 00
6163	" 6	John Strong Denton. . . . .	" . . . . .	Port Dalhousie, Ont. . . . .	Windsor, Ont. . . . .	6 00
6164	" 6	Evan James . . . . .	Master. . . . .	Vancouver, B. C. . . . .	Vancouver, B. C. . . .	15 00
6165	" 6	James L. Whyte. . . . .	" . . . . .	" . . . . .	" . . . . .	15 00
6166	" 6	Joseph E. Desloges. . . . .	" (temp. certificate. . . . .	Ottawa, Ont. . . . .	Ottawa, Ont. . . . .	5 00
6167	" 6	Phillipe Garneau. . . . .	Mate. . . . .	Lotbinière, P.Q. . . . .	" . . . . .	6 00
6168	" 6	Hugh St. Clair Cameron . . . . .	" . . . . .	Vancouver, B. C. . . . .	Vancouver, B. C. . . .	6 00
6169	" 6	Jean Benoit Deslauriers. . . . .	Master. . . . .	St. Rock, P. Q. . . . .	Ottawa, Ont. . . . .	15 00
6170	" 6	John C. Gilchrist. . . . .	Mate. . . . .	St. John, N. B. . . . .	Yarmouth, N. S. . . .	6 00
6171	" 6	Henry William Calhoun . . . . .	Master. . . . .	St. Martins, N. B. . . . .	" . . . . .	15 00
6172	" 6	Gordon S. Wright. . . . .	" . . . . .	Toronto, Ont. . . . .	Windsor, Ont. . . . .	15 00
6173	" 6	Fred J. Burke. . . . .	" . . . . .	Midland, Ont. . . . .	" . . . . .	15 00
6174	" 6	Andrew Robson. . . . .	Mate. . . . .	Victoria, B. C. . . . .	Victoria, B. C. . . . .	6 00
6175	" 6	Joseph E. Houghton. . . . .	" . . . . .	Collingwood. . . . .	Collingwood, Ont . . .	6 00
6176	" 6	Albert Beatty. . . . .	" . . . . .	Midland, Ont. . . . .	" . . . . .	6 00
6177	" 6	Edouard Francœur. . . . .	Master. . . . .	Ste. Anne de Bellevue, P. Q. . . . .	Ottawa, Ont . . . . .	15 00
6178	" 6	George Ford. . . . .	Mate. . . . .	Vancouver, B. C. . . . .	Vancouver, B. C. . . .	6 00
6179	" 6	Alfred Edward Fraser. . . . .	Master. . . . .	Keewatin, Ont. . . . .	W. Selkirk, Man. . . .	15 00
6180	" 6	Israel Desforge. . . . .	" (temp. certificate. . . . .	Calumet, P. Q. . . . .	Ottawa, Ont . . . . .	5 00
6181	" 6	Conrad Myers . . . . .	Master. . . . .	Prince Rupert, B. C. . . . .	Vancouver, B. C. . . .	15 00
6182	" 6	John Sears Raymond. . . . .	Mate. . . . .	Dawson, Y. T. . . . .	" . . . . .	6 00
6183	" 6	John Buffet . . . . .	" . . . . .	Sydney, C. B., N. S. . . . .	North Sydney, C. B., N. S. . . . .	6 00
6184	" 6	James Dustan . . . . .	Master. . . . .	West Toronto, Ont. . . . .	Collingwood, Ont. . . .	15 00
6185	" 6	Theophilus A. Stewart. . . . .	Mate. . . . .	Charlottetown, P.E.I . . . . .	Charlottetown, P. E. I . . . . .	6 00
6186	" 6	Haakon Frederickson. . . . .	Master. . . . .	Vancouver, B. C. . . . .	Vancouver, B. C. . . .	15 00
6187	" 6	Harry Archibald Flick. . . . .	" . . . . .	Halifax, N. S. . . . .	Halifax, N. S. . . . .	15 00
6188	" 6	George Magar. . . . .	" . . . . .	Prince Rupert. . . . .	Vancouver, B. C. . . .	15 00
6189	" 6	John Birkland . . . . .	" . . . . .	Victoria, B. C. . . . .	Victoria B. C. . . . .	15 00
6190	" 6	Thomas James Jackman. . . . .	" . . . . .	" . . . . .	" . . . . .	15 00
6191	" 6	Joseph Parker Bucey. . . . .	" . . . . .	" . . . . .	" . . . . .	15 00
6192	" 6	Alfred Brown. . . . .	" . . . . .	Clark's Harbour, N. S. . . . .	Yarmouth, N. S. . . .	15 00



## SESSIONAL PAPER No. 21

LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911—*Continued.*

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910.					\$
6193	April 6	Arthur O'Neil.....	Master.....	Indian Harbour, N.S.	Yarmouth, N.S.	15 00
6194	" 6	Charles Tachereau Beard	Mate.....	Ottawa, Ont.....	Halifax, N.S.	6 00
6195	" 6	John Laurence Bottrill..	Master.....	Vancouver, B.C.....	Vancouver, B.C.	15 00
6196	" 6	Joseph Harris Deball ..	(temp. cert.)	Collingwood, Ont.....	Collingwood, Ont.	5 00
6197	" 6	Charles Addison Gerow..	".....	Bark's Falls, Ont.....	"	15 00
6198	" 6	Thomas Kennedy.....	".....	"	"	15 00
6199	" 6	George Edward Dicks....	Mate.....	North Sydney, N.S....	North Sydney, N.S.	6 00
6200	" 6	Charles A. Gardner.....	Master.....	New Westminster, B.C.	Victoria, B.C.	15 00
6201	" 6	Arthur Swim.....	Mate.....	Lockeport, N.S.....	Yarmouth, N.S.	6 00
6202	" 6	Robert Stanley Fraser...	".....	Keewatin, Ont.....	West Selkirk, Man	6 00
6203	" 6	Ben. Edward Wright....	Master.....	Aitkens Ferry, P.E.I.	Charlottetown, P. E.I.	15 00
6204	" 6	William Henry Lowry....	Mate.....	Walkerville, Ont.....	Windsor, Ont	6 00
6205	" 6	John A. Martin.....	".....	Sault Ste Marie, Ont.	"	6 00
6206	" 6	Allan Hains.....	".....	Richibucto, N.B.....	Yarmouth, N.S.	6 00
6207	" 6	Joshua D. Colwell.....	".....	Cambridge, N.B.....	"	6 00
6208	" 6	Joseph Philip.....	Master.....	Port Hope, Ont.....	Toronto, Ont.	15 00
6209	" 6	Louis B. Thorne.....	".....	Bracebridge, Ont.....	"	15 00
6210	" 20	Harry Rich. Whitman...	".....	Victoria, B.C.....	Victoria, B.C.	15 00
6211	" 20	Norman W. Thompson...	Mate.....	"	"	6 00
6212	" 20	Samuel Matheson.....	".....	Nelson, B.C.....	Nelson, B.C.	6 00
6213	" 20	Alexander Thompson....	".....	Arrow Head, B.C.....	"	6 00
6214	" 20	Zatigue Perrault.....	Master.....	Lanoraie, P.Q.....	Montreal, P.Q.	15 00
6215	" 20	Eugene Fortin.....	Mate.....	L'Islet, P.Q.....	"	6 00
6216	" 20	Alphonse Lapine.....	".....	Pointe Claire, P.Q....	"	6 00
6217	" 20	Albert Lalonde.....	Master.....	St. Joseph de Levis, P.Q.	"	15 00
6218	" 20	Gustave Lefebvre.....	".....	Pointe Claire, P.Q....	"	15 00
6219	" 20	William John Murphy....	Mate.....	Kingston, Ont.....	"	6 00
6220	" 20	John McKenzie.....	Master.....	Bayble, Scotland.....	Port Arthur, Ont.	15 00
6221	" 20	Edmond Desmarais.....	".....	Sorel, P.Q.....	Ottawa, Ont.	15 00
6222	" 20	Bruce Pringle.....	Mate.....	Temiskaming, P.Q....	"	6 00
6223	" 20	James Alex. Menagh....	".....	Smith Falls, Ont.....	"	6 00
6224	" 20	William Henry West....	".....	Port Arthur, Ont.....	Port Arthur, Ont.	6 00
6225	" 20	Laurence Budreau.....	Mate.....	Rainy River, Ont.....	Rainy River, Ont.	6 00
6226	" 20	Joseph E. Budreau.....	Master.....	"	"	15 00
6227	" 20	Henry Gehl.....	Mate.....	Port Arthur, Ont.....	Port Arthur, Ont.	6 00
6228	" 20	Harry Friday.....	Master.....	"	"	15 00
6229	" 20	Alexander Fader.....	".....	"	"	15 00
6230	" 20	John Quick.....	".....	Rainy River, Ont.....	Rainy River, Ont.	15 00
6231	" 20	Hermann Niclas.....	".....	Edmonton, Alta.....	Edmonton, Alta.	15 00
6232	" 20	Charles Irvine McNeill..	Mate.....	Aitkens Ferry, P.E.I.	Charlottetown, P. E. I.	6 00
6233	" 20	Henry Henderson.....	Master, (temp. cert.)	Dawson, Y. T.....	Victoria, B.C.	5 00
6234	" 20	William A. Murphy.....	Master.....	Halifax, N.S.....	Yarmouth, N.S.	15 00
6235	" 20	Arthur E. Englefield....	Mate.....	St. John, N.B.....	"	6 00
6236	" 20	Daniel Joseph McDonald	".....	Halifax, N.S.....	Halifax, N.S.	6 00
6237	" 20	William P. Simpson.....	Master.....	Selkirk, Man.....	West Selkirk, Man	15 00
6238	" 20	Charles Williams.....	".....	Sturgeon Falls, Ont...	Toronto, Ont.	15 00
6239	" 20	James W. Sutherland....	".....	North Sydney, N.S....	North Sydney, N.S.	15 00
6240	" 20	John Dube.....	".....	Parry Sound, Ont.....	Collingwood, Ont.	15 00
6241	" 20	Walter Williston.....	".....	Chatham, N.B.....	Halifax, N.S.	15 00
6242	May 2	John Burns.....	".....	Haileybury, Ont.....	Ottawa, Ont.	15 00
6243	" 2	John Cunningham.....	(temp. cert.)	Gaudette, P. Q.....	"	15 00
6244	" 3	Stephen Carlson.....	Mate.....	Vancouver, B.C.....	Vancouver, B.C.	6 00
6245	" 3	Frederick George Mills..	Master.....	Toronto, Ont.....	Toronto Ont.	15 00
6246	" 3	Thomas Watt Weir.....	Mate.....	Cushing, Que.....	Montréal, P.Q.	6 00
6247	" 3	William Donaldson.....	".....	Thurso, Que.....	Ottawa, Ont.	6 00
6248	" 3	John Shannon.....	Master.....	Prince Rupert, B.C...	Vancouver, B.C.	15 00
6249	" 3	John E. Doddridge.....	".....	"	"	15 00
6250	" 3	William Cook.....	(temp. cert.)	Grenville, Que.....	Ottawa, Ont.	5 00
6251	" 3	William Edward Fairhall	Mate.....	Bracebridge, Ont.....	Collingwood, Ont.	6 00



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LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911—*Continued.*

No. of certi- ficate.	Date of certifi- cate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910					\$
6252	May 3	Daniel Donald .....	Master.....	Vancouver, B.C.....	Vancouver, B.C..	15 00
6253	" 3	David John Tyndall....	" .....	Lions Head, Ont..	Collingwood, Ont.	15 00
6254	" 10	William Hurley.....	" .....	St. John, N.B.....	Yarmouth, N.S...	15 00
6255	" 10	Axel Ingvald Larsen....	" .....	Quebec, Que....	Montreal, P.Q....	15 00
6256	" 10	Alfred C. Robinson....	Mate.....	Toronto, Ont.....	" .....	6 00
6257	" 10	Samuel Roach .....	Mate.....	Eastern Harbour, N.S.	Yarmouth, N.S...	6 00
6258	" 10	Alexander R. Craigie...	Master.....	Tobomory, Ont.....	Collingwood, Ont..	15 00
6259	" 10	John Morel, Jr.....	Master, (temp. cert.)	St. Henri de Taillon, P.Q.	Montreal, P.Q....	5 00
6260	" 10	Francis Thomas Dodds..	" .....	Kenora, Ont.....	Kenora, Ont.....	5 00
6261	" 10	Joseph Nadon.....	" .....	Montebello, P.Q....	Ottawa, Ont.....	5 00
6262	" 10	Neil Maclean.....	Mate.....	Victoria, B.C.....	Victoria, B.C.....	6 00
6263	" 13	William W. Harding....	Master.....	Lower St. Mary's, N.B.	St. John, N.B...	15 00
6264	" 13	Grover Cleveland Nason.	" .....	Waasis Sunbury, N.B.	" .....	15 00
6265	" 13	Ralph Munroe .....	" .....	Sheet Harbour, N.S...	Yarmouth, N.S...	15 00
6266	" 19	Daniel James McAllister	Mate.....	Peterboro, Ont.....	Ottawa, Ont.....	6 00
6267	" 19	Alexander Cameron.....	Master.....	St. Peters, C.B.....	Yarmouth, N.S...	15 00
6268	" 19	George H. Brannon.....	" .....	Centreville, Cape Isld.	" .....	15 00
6269	" 19	Laurence Watt.....	Mate.....	Vancouver, B. C .....	Vancouver, B.C...	6 00
6270	" 19	John Robertson .....	" .....	" .....	" .....	6 00
6271	" 19	William W. Burns.....	Master.....	Norton, N.B.....	St. John, N.B...	15 00
6272	" 19	Daniel Apt. ....	" .....	Westfield, N.B. ....	" .....	15 00
6277	" 19	Mansfield Barton.....	" .....	Campbellton, N.B .....	Montreal, P.Q....	15 00
6253	" 26	Oscar Cameron.....	" .....	Victoria, B.C.....	Victoria, B.C.....	15 00
6274	" 26	Charles H. Rush.....	" .....	Fredericton, N.B.....	Yarmouth, N.S...	15 00
6276	" 26	Joseph Millette.....	" .....	Sorel, P.Q.....	Montreal, P.Q....	15 00
6277	" 1	Simeon Coolen.....	" .....	Vancouver, B.C .....	Vancouver, B.C...	15 00
6278	" 1	Abel Pearce.....	" .....	Strathcona, Alta.....	Edmonton, Alta..	15 00
6279	" 1	George Morton Morrell..	" .....	St. John, N.B.....	Yarmouth, N.S...	15 00
6280	" 1	Perley W. McBride.....	Mate.....	Waterville, N.S .....	" .....	6 00
6281	" 1	John Standly.....	Master, (temp. cert.)	Banff, Alta.....	Kenora, Ont.....	5 00
6282	" 1	Ole Dahl.....	" .....	" .....	" .....	5 00
6283	" 7	George Jones.....	Master..	Esquimalt, B.C.....	Victoria, B.C.....	15 00
6284	" 7	Robert Thomson.....	Mate.....	Victoria, B.C.....	" .....	6 00
6285	" 7	William R. Isherwood...	" .....	Fort Francis, Ont....	West Selkirk, Man.	6 00
6286	" 7	John Arnold Mowry....	Master.....	St. John, N.B.....	Yarmouth, N.S...	15 00
6287	" 7	Clair D. Baker.....	" .....	Margaretville, N.S .....	" .....	15 00
6288	" 13	Henry C. Cartmell.....	Mate.....	Chilliwack, B.C. ....	Vancouver, B.C...	6 00
6289	June 13	James Vincent Cavanagh	Master.....	Perth, Ont.....	Ottawa, Ont .....	15 00
6290	" 18	Charles A. Britton.....	" (temp. cert.)	Sturgeon Falls, Ont...	" .....	5 00
6291	" 20	John Annett.....	Mate.....	Nelson, B.C .....	Nelson, B.C.....	6 00
6292	" 20	William H. Murphy .....	" .....	Clarks Harbour, N.S.	Yarmouth, N.S...	6 00
6293	" 20	John S. Nicholson.....	" .....	Goderich, Ont.....	Windsor, Ont.....	6 00
6294	" 20	John Peter McLeod.....	Master.....	Hamilton, Ont.....	" .....	15 00
6295	" 20	Eugene Carpentier.....	Mate.....	Champlain, P.Q .....	Montreal, P.Q....	6 00
6296	" 20	Elieud Hoffman.....	" .....	Berthier, P.Q.....	" .....	6 00
6297	" 23	David G. Morrissey.....	Master..	Clarks Harbour, N.S.	Yarmouth, N.S...	15 00
6298	" 29	Henry Carr Cartmell....	" .....	Chilliwack, B.C. ....	Vancouver, B.C...	15 00
6299	" 29	Xavier Brisebois.....	" .....	Ottawa, Ont.....	Ottawa, Ont.....	15 00
6300	July 8	Joseph Connor.....	Mate.....	Victoria, B.C.....	Victoria, B.C.....	6 00
6301	" 8	Charles A. Murdock .....	Master.....	Sherbrooke, N.S.....	Yarmouth, N.S...	15 00
6302	" 8	Frederick A. Harrison...	" .....	Owen Sound, Ont....	Collingwood, Ont	15 00
6303	" 8	Oliver George Kinnie....	" .....	Vancouver, B.C.....	Vancouver, B.C...	15 00
6304	" 8	Albert F. Stanton. ....	" (temp. cert.)	Port Stanton, Ont...	Collingwood, Ont.	5 00
6305	" 13	Charles Lewis Fischer...	Master.....	Victoria, B.C.....	Victoria, B.C.....	15 00
6306	" 13	Gilbert W. Brewster....	Mate.....	Ladner, B.C.....	Vancouver, B.C...	6 00
6307	" 18	Telesphore Martin .....	Master (temp. cert.)	Pointe Fortune, P.Q..	Montreal, P.Q....	5 00
6308	" 18	James Andrew Lamb....	Master.....	Arrowhead, B.C.....	Nelson, B.C.....	15 00
6309	" 26	James Arthur Nipon....	Mate.....	Denman Island, B.C..	Victoria, B.C.....	6 00
6310	" 26	Thomas John Robinson..	" .....	Wabigoon, Ont.....	West Selkirk, M..	6 00
6311	" 26	James Samuel Jones.....	Master.....	Port Maitland, Ont...	Toronto, Ont.....	15 00



## SESSIONAL PAPER No. 21

LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911—*Continued.*

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910					\$
6312	Aug. 9	James Dennett..	Mate	New Westminster, B.C.	Vancouver, B.C.	6 00
6313	" 9	"	Master..	"	"	15 00
6314	" 9	Ezra Groleau.....	Mate.....	Vancouver, B.C.....	"	6 00
6315	" 9	Samuel Herbert Coldicutt	"	Victoria, B.C.....	Victoria, B.C.	6 00
6316	" 9	"	Master..	"	"	15 00
6317	" 9	James A. Morrison.....	"	"	"	15 00
6318	" 9	Edouard Cloutier.....	"	Anse à Giles, P.Q.....	Montreal, P.Q.....	15 00
6319	" 9	Charles D. MacLean.....	Mate.....	Chatham, N.B.....	Yarmouth, N.S..	6 00
6320	" 11	Oscar Wanamaker ..	Master (temp. cert.)	Lakefield, Ont.....	Ottawa, Ont. ....	5 00
6321	" 11	Charles McLeod .....	Master, (temp. cert.)	Cumberland, Ont..	"	5 00
6322	" 19	Joseph Frenette .....	Master.....	Quebec, Que.....	Montreal, P.Q....	15 00
6323	" 19	John Finlay.....	"	Vancouver, B.C.....	Vancouver, B.C....	15 00
6324	" 19	Ralph F. Forrest.....	"	Lockport, Man.....	West Selkirk, Man.	15 00
6325	Sept. 16	Stanley B. Wright ..	Master. (temp. cert.)	Bobcaygeon, Ont.....	Collingwood, Ont.	5 00
6326	" 16	Thomas A. Brown.....	Master.....	Sarnia, Ont.....	Windsor, Ont.....	15 0
6327	" 16	Thomas Bushey .....	"	Byng Inlet, Ont .....	Toronto, Ont. ....	15 00
6328	" 16	Herbert L. Duhamel.....	"	Vancouver, B.C.....	Vancouver, B.C....	15 00
6329	" 16	Zotique Mongeau.....	"	Sorel, P.Q.....	Montreal, P.Q.....	15 00
6330	" 16	Joseph Alphonse Lepine.	"	St. Claire, P.Q.....	"	15 00
6331	" 16	Joseph Coutu.....	"	St. Rock, Richelieu River.	"	6 00
6332	" 16	James Benham.....	"	Lockeport, N.S.....	Yarmouth, N.S....	15 00
6333	" 16	Wallace G. Rockwell....	"	River Hebert, N.S....	"	6 00
6334	" 16	Harry Albert Tufts.....	"	St. John, N.B.....	"	15 00
6335	" 16	Herbert C. Crabbe.....	"	Brown's Flat .....	"	15 00
6336	" 16	John Thompson.....	Mate.....	Arrowhead, B.C.....	Nelson, B.C.....	6 00
6337	" 16	William Gasper Jackson.	Master.....	Upper North Sydney, N.S.	North Sydney, N.S.	15 00
6338	" 16	John Burns Moore.....	"	Oliphant, Ont.....	Windsor, Ont.....	15 00
6339	" 16	Gilbert George Brown....	"	Vancouver, B.C.....	Vancouver, B.C.	15 00
6340	" 16	"	Mate.....	"	"	6 00
6341	" 16	Gordon Inness.....	Master.....	Liverpool, N.S.....	Yarmouth, N.S....	15 00
6342	" 16	John W. Dollar.....	Mate.....	Hampstead, N.B..	"	6 00
6343	" 16	William Blake .....	"	Toronto, Ont.....	Montreal, P.Q.....	6 00
6344	" 19	Joseph Mongeau.....	Master.....	Sorel, P.Q.....	"	15 00
6345	" 29	Roderick MacKillop.....	"	Vancouver, B.C.....	Vancouver, B.C..	15 00
6346	" 29	Gwilym Arthur Williams	Mate.....	"	"	6 00
6347	Oct. 8	Donald McGillivray. ....	"	Kingston, Ont.....	Montreal, P.Q.....	6 00
6348	" 6	Ludoric Lacouture.....	Master.....	Montreal, P.Q.....	"	15 00
6349	" 6	George Bruce McLeod ..	Mate.....	Proctor, B.C.....	Nelson, B.C.....	6 00
6350	" 6	Frank Goreham.....	Master.....	Woods Harbour, N.S..	Yarmouth, N.S....	15 00
6351	" 6	Sydney A. Harris .....	"	Vancouver, B.C.....	Victoria, B.C.....	15 00
6352	" 6	James Wilson Sutherland	"	North Sydney, N.S....	North Sydney, N.S.	15 00
6353	" 6	Arthur George Cousins..	Master.....	Belleville, Ont.....	Windsor, Ont.....	15 00
6354	" 13	Charles H. Marshall .....	"	Halifax, M.S.....	Halifax, N.S. ....	15 00
6355	" 13	Douglas Copperthwaite..	" (temp. cert.)	Campbellford, Ont....	"	5 00
6356	" 13	John Parker Pearson....	Master.....	Owen Sound, Ont.....	Windsor, Ont.....	15 00
6357	" 13	James Pendergast.....	" (temp. cert.)	Cornwall, Ont.....	"	5 00
6358	" 13	Gordon Evans .....	Mate.....	Victoria, B.C.....	Victoria, B.C....	6 00
6359	" 26	George Moraes.....	Master.....	"	"	15 00
6360	" 26	Ellice Martin Cavin.....	"	"	"	15 00
6361	" 26	Norman Gilbert Marvin ..	Mate.....	Dartmouth, N.S.....	Halifax, N.S. ....	6 00
6362	" 26	Adolphe Lalonde.....	"	Cheneville, P.Q.....	Montreal, P.Q.....	6 00
6363	" 26	Robert Thomas Drever..	Master...	Vancouver, B.C.....	Vancouver, B.C....	15 00
6364	Nov. 4	William S. Gale .....	"	Sombra, Ont.....	Windsor, Ont.....	15 00
6365	" 4	Samuel Nelson .....	Mate.....	Vancouver, B.C.....	Vancouver, B.C....	6 00
6366	" 8	Arthur Coutu.....	"	St. Rock, P.Q.....	Montreal, P.Q.....	6 00
6367	" 18	James S. Crouse.....	Master.....	Bridgewater, N.S.....	Lunenburg, N.S....	15 00
6368	" 18	Charles Albert Gilbert ..	"	Victoria, B.C.....	Victoria, B.C.....	15 00
6369	" 18	"	Mate.....	"	"	6 00



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LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911—*Continued.*

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910.					\$
6370	Dec. 1	Angus McLeod .....	" .....	Vancouver, B.C.....	Vancouver, B.C....	6 00
6371	" 1	Angus Carmichael Penney .....	" .....	North Vancouver, B.C.	" .....	6 00
6372	" 1	William Frank Lipsett .....	" .....	St. John, N.B. ....	Yarmouth, N.S....	6 00
6373	" 1	Elie Bouille. ....	Master..	L'Ange Gardien, P.Q..	Montreal, P.Q. ...	15 00
6374	" 7	Percy Massey Pearson ..	Mate.....	West Selkirk, Man....	West Selkirk, Man.	6 00
6375	" 14	William Liddell.....	Master.....	Kingston, Ont. ....	Windsor, Ont.....	15 00
6376	" 14	George Nelson Hudgin..	" .....	Picton, Ont. ....	" .....	15 00
	1911.					
6377	Jan. 10	William Sutherland.....	Mate.....	Vancouver, B.C.....	Victoria, B.C.....	6 00
6378	" 10	Alphonsus George Gleeson .....	" .....	76 Masterman Road-E, Ham London, En- gland.	Yarmouth, N.S....	6 00
6379	" 10	Jean Baptiste C. Haymond.	Master.....	Beauharnois, P.Q. ....	Montreal, P.Q. ...	15 00
6380	" 19	Sidney W. Collacott .....	Mate.....	Nelson, B.C. ....	Nelson, B.C. ....	6 00
6381	" 19	James Ewing Noel.....	Master.....	Victoria, B.C. ....	Victoria, B.C. ....	15 00
6382	" 19	Hector Larosie.....	Mate .....	Pierville Mills, P.Q. ..	Montreal, P.Q. ....	6 00
6383	" 19	Archibald John Currie ..	" .....	Collingwood, Ont.....	Collingwood, Ont.	6 00
6384	" 19	Hermenegilde St. Mar- seille.	" .....	Cascades Point, P.Q....	Montreal, P.Q. ...	6 00
6385	" 19	Harry James Martin.....	" .....	Kingston, Ont.....	" .....	6 00
6386	" 19	Charles Alexander Martin ..	" .....	" .....	" .....	6 00
6387	" 19	Amede Seguin.....	" .....	Hudson Heights, P.Q..	" .....	6 00
6388	" 19	Wilfrid Frottier ..	Master.....	St. Anne de Bellevue, P.Q.	" .....	15 00
6389	" 19	Calvin Eldridge.....	Mate... ..	C. G. S. "Curlew" Halifax, N.S.	Halifax, N.S.....	6 00
6390	" 26	Alexander Cameron. ..	" .....	80 Shore St. Gourock, Scotland.	Victoria, B.C. ...	6 00
6391	" 26	Gagstad Erling .....	Master..	Victoria, B.C. ...	" .....	15 00
6392	" 26	Samuel Jeremiah Delaney ..	" .....	Morrisburg, Ont.....	Collingwood, Ont.	15 00
6393	" 26	Eldon Walkinshaw. ....	Mate.....	Collingwood, Ont.....	" .....	6 00
6394	" 26	Alphonse Hoffmann .....	Master.....	Berthier, P.Q. ....	Montreal, P.Q. ....	15 00
6395	" 26	Charles Livingstone Ross ..	Mate.....	Portsmouth, Ont. ....	" .....	6 00
6396	" 26	Wendell James Brown..	Master.....	Corunna, Ont.....	Windsor, Ont. ...	15 00
6397	Feb. 10	William James Balcom..	Mate.....	Halifax, N.S.....	Halifax, N.S. ....	6 00
6398	" 10	David Candow.....	" .....	Vancouver, B.C.....	Vancouver, B.C....	6 00
6399	" 10	Roderick MacKenzie.....	" .....	Victoria, B.C. ....	Victoria, B.C. ....	6 00
6400	" 10	Donat Lemay.....	Master.....	Lotbiniere, P.Q.....	Montreal, P.Q. ....	15 00
6401	" 10	Joseph Latour.....	" .....	St. Ignace de Loyola, P.Q.	" .....	15 00
6402	" 10	Thomas Tolson Edwards.	" .....	Vancouver, B.C. ...	Vancouver, B.C....	15 00
6403	" 10	Edward Seymour Gage..	Mate.....	Toronto, Ont. ....	Toronto, Ont. ....	6 00
6404	" 10	Theodore S. Seaman .....	Master (temp. cert.)	Sauble Falls, Ont.....	Collingwood, Ont..	5 00
6405	" 22	Stanley Murch.....	Mate.....	Collingwood, Ont.....	" .....	6 00
6406	" 22	Earnest Russell Elyea. ..	" .....	Mairs Mills, Ont....	" .....	6 00
6407	" 22	Daniel Martin.....	Master.....	Nanaimo, B.C.....	Victoria, B.C.....	15 00
6408	" 22	Charles A. Neal .....	Mate.....	Courtright, Ont.....	Windsor, Ont.....	6 00
6409	" 22	Thomas E. Hefferman....	" .....	Picton, Ont.....	" .....	6 00
6410	" 22	David Combe.....	Master..	Vancouver, B.C. ...	Vancouver, B.C....	15 00
6411	" 22	Samuel Dawe.....	" .....	" .....	" .....	15 00
6412	" 22	Frank H. Hawkes.....	Mate... ..	Collingwood, Ont. ....	Collingwood, Ont..	6 00
6413	" 22	Alfred Francis.....	" .....	Toronto, Ont. ....	Toronto, Ont. ....	6 00
6414	" 22	Edward Georgeson .....	" .....	Victoria, B.C.....	Victoria, B.C.....	6 00
6415	" 22	William B. McCarthy....	" .....	Vancouver, B.C.....	Vancouver, B.C....	6 00
6416	" 22	Thomas Tolson Edwards.	" .....	" .....	" .....	6 00
6417	Mar. 13	Charles Britton. ....	Mate .....	Meaford, Ont.....	Toronto, Ont. ....	6 00
6418	" 13	John Buchanan.....	Master..	Toronto, Ont.....	" .....	15 00
6419	" 13	William Davidson .....	" .....	Village of Dorset, Ont.	Collingwood, Ont.	15 00
6420	" 13	Malcolm Stalker.....	" .....	Peletanguishine, Ont..	" .....	15 00
6421	" 13	John A. McLellan.....	Mate.....	East Linton, Ont.....	Windsor, Ont.....	6 00
6422	" 13	Albert J. Hogue .....	" .....	Brookholm, Ont.....	" .....	6 00



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LIST of Certificates of competency issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911—*Concluded*.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910.					\$
6423	Mar. 13	James Pope ..	Master.....	Louisburg, N.S. ....	Halifax, N.S. ....	15 00
6424	" 13	William Allan Darling..	Mate.....	Collingwood, Ont. ....	Collingwood, Ont.	6 00
6425	" 13	Joseph Leduc.....	Master..	St. Henri, P.Q.....	Montreal, P.Q....	15 00
6426	" 13	Joseph Lazare D. Morin.	"	St. Marcel, P.Q. ....	"	15 00
6427	" 13	Oscar Mercier .....	Mate.....	Berthier en Bas, P.Q.	"	6 00
6428	" 13	Philippe Gagnon.....	"	Rivière Ouelle, P.Q....	"	6 00
6429	" 13	Octave Houde .....	"	St. Antoine de Tilly, P.Q.	"	6 00
6430	" 13	Frank A. Firth. ....	Master.....	Lockeport, N.S. ....	Yarmouth, N.S....	15 00
6431	" 13	James P. Loughery.....	"	St. John, N.B.....	"	15 00
6432	" 13	Richard Avery Minniss.	"	Morden, N.S.....	"	15 00
6433	" 13	Lewis F. Barkhouse....	Mate.....	Westport, N.S. ..	"	6 00
6434	" 13	William Dalton.....	"	Sault Ste. Marie, Ont..	Windsor, Ont.....	6 00
6435	" 13	Philius Blouin .....	"	Quebec, Que.....	Montreal, P.Q. ..	6 00
6436	" 13	James Jackson. ....	Master, (temp. cert.).	Indian White Horse, Y.T.	"	5 00
6437	" 13	Joseph John May.....	Master.....	Little Current, Ont....	Collingwood, Ont.	6 00
6438	" 13	Hartford D. Laughlin..	Mate.....	Midland, Ont. ....	"	6 00
6439	" 29	Angus Gordon MacKay.	Master.....	Owen Sound, Ont.....	Toronto, Ont.....	15 00
6440	" 29	James D. Montgomery..	"	Collingwood, Ont.....	Collingwood, Ont.	15 00
6441	" 29	Adam Casson .....	"	Gore Bay, Ont.....	Toronto, Ont. ....	15 00
6442	" 29	Herbert Williard LaRush	"	Toronto Ont. ....	"	15 00
6443	" 29	Alexander Ryan.....	"	Millville, C.B., N.S...	North Sydney, N.S.	15 00
6444	" 29	Robert Wilson .....	"	Vancouver, B.C.....	Vancouver, B.C....	15 00
6445	" 29	James Batt. ....	Mate.....	"	"	6 00
6446	" 29	William Herbert Ransom	"	King, Ont.....	Collingwood, Ont.	6 00
6447	" 29	Robert Stuart Kerr. ....	"	Victoria, B.C. ....	Victoria, B.C. ....	6 00
6448	" 29	Frank Gosse.....	"	"	"	6 00
6449	" 29	Nelson McGlennon.....	Master.....	Toronto, Ont. ....	Toronto, Ont. ....	15 00
6450	" 29	Douglas Copperthwaite..	"	Peterborough, Ont.....	"	15 00
6451	" 29	Henry Douglas.....	"	Birdsall, Ont.....	"	15 00
6452	" 29	Arthur Jefferys.....	"	Brantford, Ont.....	"	15 00
6453	" 29	Frank William Kingston	"	Port Colborne, Ont. ..	"	15 00
6454	" 29	Victor Houde.....	Mate.....	St. Antoine de Tilly, P.Q.	Montreal, P.Q....	6 00
6455	" 29	William Vincent Smith..	Master.....	Seeley's Bay, Ont. ....	"	15 00
6456	" 29	Calice P. Bourgeois.....	Mate.....	Cheticamp, N.S. ....	Yarmouth, N.S....	6 00
6457	" 29	Andrew B. Guilfoil.....	Master..	St. John, N.B.....	"	15 00
6458	" 29	James Curwen.....	"	Richibucto, N.B.....	"	15 00
6459	" 29	Christopher McLean....	"	Chatham, N.B.....	Halifax, N.S. ....	15 00
6460	" 29	Arthur L. Woods. ....	Mate.....	Halifax, N.S.....	"	6 00
6461	" 29	William Siskand .....	Master...	"	"	15 00
6462	" 29	James Lawrence.....	"	Vancouver, B.C. ....	Vancouver, B.C....	15 00
6463	" 29	Ernest Samuel Bailey...	Mate.....	Collingwood, Ont.....	Collingwood, Ont.	6 00
6464	" 29	Arthur James Kelly ....	Master.....	Kippewa, Ont.....	"	15 00
6465	" 29	Joseph Harris Daball...	Master, (temp. cert.).	Collingwood, Ont.....	"	5 00
6466	" 29	McLean Campbell.....	Master.....	"	Collingwood, Ont.	15 00
6467	" 29	Arthur Arch. Hudson...	"	"	"	15 00

LIST of Certificates of service issued to Masters and Mates of inland and coasting vessels during the twelve months ended March 31, 1911.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910.					\$
3411	Aug. 8	Enoch Mason.....	Master. ....	Mahone Bay, N.S.....	Halifax, N.S.....	8 00



2 GEORGE V., A. 1912

LIST of Certificates of competency sea-going to Masters, Mates and Second Mates issued for the twelve months ending March 31, 1911.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910.					\$
3833	April 1	Robert J. Dustan.....	2nd Mate.....	Pictou, N.S.....	Halifax, N.S.....	8 00
3834	" 1	Harry Stewart Morris...	Master.....	Middleton, N.S. ...	" .....	15 00
3835	" 1	Hiram C. Mitchell.....	Mate.....	Halifax, N.S.....	" .....	8 00
3836	" 26	Albert G. Hermanson...	Master..	St. John, N.B.....	Yarmouth, N.S...	15 00
3837	" 26	David I. Wade.....	2nd Mate.....	Annapolis, N.S. ....	" .....	8 00
3838	June 3	John Cecil Conroy...	" .....	Seaman's Institute....	Vancouver, B.C...	8 00
3839	" 3	Robert J. Blair.....	Mate.....	Karsdale, N.S. ....	Yarmouth, N.S...	8 00
3840	" 3	John McIntyre. ....	2nd Mate.....	Vancouver, B.C. ....	Vancouver, B.C...	8 00
3841	" 3	James Laurence.....	" .....	" .....	" .....	8 00
3842	" 17	Sidney Alex. Smith.....	Mate.....	55 Thompson Street, Aberdeen.	" .....	8 00
3843	" 17	Edward J. Hagan .....	" .....	Liverpool, N.S.....	Yarmouth, N.S...	8 00
3844	July 16	G. E. Lloyd Kay .....	2nd Mate.....	St. John, N.B.....	Halifax, N.S.....	8 00
3845	Aug. 4	William Freder'k Evelyn	Master.....	Yarmouth, N.S.....	Yarmouth, N.S...	15 00
3846	" 13	Joseph Russell Stenhouse	2nd Mate.....	23 Victoria Avenue, Barrow-in-Furness, England.	Vancouver, B.C...	8 00
3847	Sept. 7	William J. McCandless..	" .....	Seamen's Mission....	" .....	8 00
3848	" 7	Eugene Loftus.....	Master..	3 Frasers Street, W. Nensington, London West.	Victoria, B.C.....	15 00
3849	" 7	Peter F. Mal'ett.....	" .....	Yarmouth, N.S.....	Yarmouth, N.S...	15 00
3850	" 7	Roderick McDonald....	Mate.....	New York, U.S.A. ...	" .....	8 00
3851	" 7	John Clair Gold.....	Master.....	Vancouver, B.C. ....	Vancouver, B.C...	15 00
3852	" 7	Hubert Shadforth.....	" .....	" .....	" .....	15 00
3853	Oct. 6	Walter Douglas Roach..	2nd Mate.....	" .....	" .....	8 00
3854	" 6	Newton A. Wilkie ....	Master..	Middle La Have, N.S.	Yarmouth, N.S...	15 00
3855	" 22	Arthur Thos. Willoughby	Mate.....	Vancouver, B.C. ....	Vancouver, B.C...	8 00
3856	Nov. 6	Alan Comben Lambert..	2nd Mate.....	126 Landcroft Road, E. Dulwich, London, England,	Victoria, B.C.....	8 00
3857	Dec. 7	Herbert Andrew Johnson	" .....	111 Coltman Strret, Hull, England.	" .....	8 00
3858	" 7	James Allen Rice... ..	" .....	Yarmouth, N.S.....	Yarmouth, N.S...	8 00
3859	" 7	George A. McBride.....	Mate.....	Harbourville, N.S....	" .....	8 00
3860	" 7	Alexander H. Strumm..	Master.....	Malone Bay, N.S.....	" .....	15 00
3861	" 7	Peter Laureat Lachance.	" .....	Quebec, P.Q.....	" .....	15 00
3862	" 13	George Parker Burris...	Mate.....	Mid' Musquodoboit, N.S.	Halifax, N.S.....	8 00
3863	1910 Jan. 10	Ralph E. Sabean... ..	2nd Mate .....	Yarmouth, N.S.....	Yarmouth, N.S...	8 00
3864	" 10	Daniel McCallum.....	" .....	Victoria, B.C.....	Victoria, B.C....	8 00
3865	" 10	Arthur Ambrose Atkins.	Master. ....	137 Isledon Rd. Fins- bury Park, London N., England.	Vancouver, B.C...	15 00
3866	Feb. 2	David Mason Taggart...	2nd Mate.....	Lower Onslow, N.S...	Halifax, N.S.....	8 00
3867	" 14	William Ramsay .....	Mate.....	No. 1 Mollison Street, Dundee.	Yarmouth, N.S...	8 00
3868	" 14	Charles A. Z. Forsell ..	" .....	Yarmouth, N.S.....	" .....	8 00
3869	" 14	Richard Lechner.....	" .....	Philadelphia, U.S.A..	Ottawa, Ont .....	8 00
3870	Mar. 15	Walter B. Bethell. ....	Master.....	Halifax, N.S.....	Halifax, N.S.....	15 00
3871	" 15	H. Marshall O'Hara.....	" .....	Isaacs Harbour, N.S..	" .....	15 00
3872	Apr. 23	Fletcher C. Zwicker....	Master.....	Mahone Bay, N.S.....	Yarmouth, N.S...	15 00
3873	May 10	Paul S. Corkum. ....	2nd mate. ....	Middle La Have, N.S.	" .....	8 00
3874	" 25	Winslow A. McKay.....	" .....	Shelburne, N.S. ....	" .....	8 00
3875	June 2	Collin McKay.....	" .....	" .....	Halifax, N.S.....	8 00
3876	" 7	Gustav Follmer .....	Master.....	Victoria, B.C. ....	Victoria, B.C.....	15 00
3877	" 20	Wilbert A. Card.....	Mate.....	Summerville, N. S....	Yarmouth, N.S...	8 00
3878	" 20	Reginald Rose .....	" .....	Cheverie, N.S.....	" .....	8 00
3879	" 20	Arthur Ellis.....	2nd mate.....	Economy, N.S.....	" .....	8 00
3880	July 13	Wilfred Lockhart.....	Master.....	Hantsport, N.S.....	" .....	15 00
3881	" 13	Fred S. Inness.....	" .....	Liverpool, N.S.. ....	" .....	15 00
3882	" 13	Alexander Walter.....	Mate.....	Vancouver, B.C.....	Vancouver, B.C...	8 00
3883	" 26	David Innes Wade .....	" .....	Annapolis, N.S.....	Yarmouth, N.S...	8 00
3884	" 26	Alexander P. Strumm ..	Master .....	Lunenburg, N.S.....	" .....	15 00



## SESSIONAL PAPER No. 21

LIST of Certificates of competency sea-going to Masters, Mates and Second Mates  
issued for the twelve months ending March 31, 1911.

No. of certi- ficate.	Date of certifi- cate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1910					\$
3885	" 26	Maurice W. Geldert ...	2nd mate .....	Morell Station, P.E.I.	Yarmouth, N. S. ...	8 00
3886	Aug. 8	James Alexander Walker	" .....	Garnethill Glasgow Scotland	Victoria, B.C. ....	8 00
3887	" 8	Henry O. Forward .....	Master.. ..	Burgeo, Newfld ..	Yarmouth, N.S. ...	15 00
3888	" 8	Wilbert A. Inness .....	" .....	Liverpool, N.S. ....	" .....	15 00
3889	Sept. 14	Jabez James Hancock...	Mate. ....	British Consul, New York.	" .....	8 00
3890	" 14	Peter Sinclair .....	Master.....	Vancouver, B. C. ....	Vancouver, B.C. ...	15 00
3891	" 14	Ambrose Landry.. ..	Mate. ....	Carleton, Que. ....	Yarmouth, N.S. ...	8 00
3892	" 14	Stanley J. Kaulback....	2nd mate. ....	Mahone Bay, N.S. ....	" .....	8 00
3893	" 14	Thomas Eli Walker.....	Mate.....	Seattle, U.S.A. ....	Vancouver, B.C. ...	8 00
3894	" 14	Arthur S. Warner .....	" .....	New York, U.S.A. ....	Yarmouth, N.S. ...	8 00
3895	" 14	Charles William Whidden	Master.....	Weymouth, N.S. ....	" .....	15 00
3896	" 29	James Alfred Chalmers	2nd mate .....	Garron Broughty Ferry W., Scotland.	Vancouver, B.C. ...	8 00
3897	" 29	Frederick James Brewis.	Master.....	59 Whitehall Road, Gateshead on Tyne	Victoria, B.C. ...	15 00
3898	Oct. 7	William Kinane .....	Mate.....	Victoria, B. C. ....	" .....	8 00
3899	" 7	Walter B. McCarthy....	Master.. ..	Halifax, N.S. ....	Yarmouth, N.S. ...	15 00
3900	" 11	Alexander D. Livingston	" .....	Big Bras d'Or, Cape Breton, N.S.	Halifax, N.S. ....	15 00
3901	" 11	Andrew Brown.....	2nd mate .....	Cheverie, N.S. ....	Yarmouth, N.S. ...	8 00
3902	" 26	Christian A. P. Jensen..	" .....	14th Columbia Place, Brooklyn, N.Y.	" .....	8 00
3903	" 26	Arthur R. C. Newburgh.	" .....	Vancouver, B. C. ....	Vancouver, B.C. ...	8 00
3904	Nov. 8	Charles B. Smith .....	Mate.....	" .....	" .....	8 00
3905	" 18	Sidney Alexander Smith.	Master.....	55 Thomson Street, Aberdeen, Scotland.	" .....	15 00
3906	" 18	Hiram Cranswick Mit- chell.	" .....	139 Upper Water Str., Halifax, N.S.	Yarmouth, N.S. ...	15 00
3907	Dec. 9	Edmund L. R. Hum- phreys.	" .....	16 Rockfield Rd., An- field, Liverpool, Eng.	Victoria, B.C. ....	15 00
	1911.					
3908	Jan. 7	Maurice Mayall.....	" .....	R.M.S. Empress of In- dia.	Vancouver, B.C. ...	15 00
3909	" 7	William Fraser.....	" .....	New York City, U.S.A.	Yarmouth, N.S. ...	15 00
3910	" 26	William Sheppard .....	2nd mate .....	H.M.C. College, Hali- fax, N.S.	Halifax, N.S. ...	8 00
3911	Feb. 13	Oswald Rennison Parker	Master.....	Victoria, B.C. ....	Victoria, B.C. ....	15 00
3912	" 22	Leonard Arthur Waters.	" .....	San Francisco, U.S.A.	Vancouver, B.C. ...	15 00
3913	Mar. 10	James S. Lecain.....	2nd mate .....	Cheverie, Annapolis, N.S.	Yarmouth, N.S. ...	8 00
3914	" 16	Alfred Grahm .....	Mate.....	New Glasgow, N.S. ....	" .....	8 00
3915	" 16	Robert N. Anderson....	2nd mate .....	Port Elgin, N.B. ....	" .....	8 00
3916	" 16	G. A. Lloyd Kay.....	Mate.....	St John, N.B. ....	" .....	8 00



APPENDIX No. 20.

STATEMENT giving names of stations and lightkeepers &c., in the Dominion of Canada.

PRINCE EDWARD ISLAND.

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Alberton.....	Jas. A. Leavitt.....	Nov. 2, 1910..	120 00
Annandale .....	Alfred Robertson.....	Oct. 6, 1898..	180 00
Block House, Point.....	A. S. McNeil.....	Mar. 25, 1901..	545 00
Brighton Range.....	Francis W. Hughes. ....	April 1, 1909..	335 00
Brush Wharf.....	D. W. McPherson.....	Jan. 13, 1899..	120 00
Cascumpec Island.....	James Tuplin .....	May 5, 1897..	440 00
Crapaud Outer.....	Abner J. Howatt.....	July 22, 1893..	180 00
" Inner.....	James Inman .....	Aug. 13, 1901..	180 00
Cardigan River.....	John W. Morrison.....	" 15, 1901..	140 00
Cape Bear .....	Luther Jordan.....	April 12, 1905..	520 00
Cape Egmont.....	Jos. J. D. Gallant.....	Oct. 21, 1902..	380 00
Cape Tryon.....	William Bell.....	Mar. 17, 1905..	380 00
Cove Head Range.....	John A. Kielly.....	Nov. 27, 1890..	140 00
Darnley Range.....	Geo. W. Wiggins. ....	Oct. 16, 1896..	220 00
Darnley, basin.....	Chas. Taylor.....	June 14, 1897..	120 00
East Point .....	R. J. McDonald.....	Jan. 18, 1901..	980 00
Fish Island .....	J. A. L. McLellan.....	.....	320 00
Georgetown Inner.....	Jesse G. Clark.....	Aug. 14, 1901..	220 00
Georgetown Railway Wharf.....	John Westaway. ....	Jan. 16, 1906..	180 00
Grand Tracadie.....	J. W. McDonald .....	May 24, 1901..	180 00
Hazard, Inner Range )	Edwin Stewart.....	.....	260 00
" Outer Range )			
Indian Point.....	J. S. Allen.....	May 18, 1898..	545 00
Little Channel.....	William Hardy.....	" 26, 1875..	180 00
Murray Harbour, Inner.....	Robert Penny.....	Nov. 11, 1897..	120 00
" Outer.....	Lemuel McLeod .....	Dec. 21, 1897..	120 00
Miminegash, Inner.....	Elijah Costain.....	May 18, 1906..	120 00
" Outer.....	Patrick O'Brien.....	" 14, 1897..	120 00
New London .....	James H. McLeod.....	Jan. 29, 1896..	220 00
North Cape.....	James Phee.....	Sept. 4, 1897..	440 00
Northport Range.....	Wm. Champion.....	Oct. 25, 1897..	180 00
North Rustico.....	Jos. N. Pino.....	Feb. 6, 1897..	220 00
Orwell .....	John McDonald.....	June 25, 1879..	120 00
Point Prim.....	Alex. McRae.....	Dec. 10, 1897..	395 00
Pannure.....	W. E. Graham.....	.....	440 00
" F. A.....	Mathias Condon.....	Aug. 4, 1908..	490 00
Savage Harbour.....	Jas. A. McDonald.....	July 11, 1889..	180 00
Sea Cow Head. ....	M. P. O'Roneghan .....	April 21, 1873..	440 00
Souris, East.....	John D. Lavie.....	June 23, 1905..	520 00
Summerside Wharf.....	John Fraser.....	April 12, 1897..	180 00
Summerside Range.....	George W. Bell.....	" 10, 1909..	125 00
St. Andrew, Point.....	George Connor.....	June 3, 1901..	220 00
St. Peters Island. ....	James W. Taylor .....	May 1, 1897..	320 00
St. Peter Harbour.....	Albert Anderson.....	July 25, 1900..	220 00
Tignish Run. ....	Agapé Gaudet . . . . .	Aug. 30, 1897..	220 00
Warren Farm Range.....	A. S. McNeil.....	May 16, 1907..	140 00
West Point.....	William McDonald.....	Jan. 22, 1876..	440 00
Wood Island.....	Roderick W. McKay.....	April 11, 1899..	380 00
Wood Island Range.....	James Young. ....	Nov. 14, 1902..	140 00
Wrights Range.....	Charles Wright.....	June 14, 1894..	180 00



SESSIONAL PAPER No. 21

STATEMENT giving names of stations and lightkeepers, &c.—Continued.

NOVA SCOTIA.

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Abbott Harbour.....	W. H. D'Entremont.....	May 22 1888.....	140 00
Advocate Harbour.....	John H. Morris.....	Aug. 10 1904.....	380 00
Amet Island.....	Lloyd Rogers.....	Nov. 11 1902.....	600 00
Amherst Harbour Range F. & B.....	William Shea.....	May 21 1908.....	260 00
Amherst Pt., Wharf.....	W. A. Downie.....	" 3 1909.....	105 00
Annapolis.....	Jos. McMullen.....	" 1 1908.....	140 00
Apple River Light and Fog Alarm.....	Hiel E. Elderkin.....	" 31 1905.....	980 00
Argyle.....	Chas. A. Amiro.....	Feb. 6 1893.....	600 00
Arichat.....	Cap. Wm. Lavashe.....	Oct. 17 1898.....	405 00
Arichat W. Fr. Range.....	Michall Gerrior.....	Sept. 1 1904.....	140 00
" W. B. Range.....	Edouard Delorey.....	" 1 1904.....	140 00
Arisaig.....	Hugh R. McAdam.....	Nov. 14 1898.....	180 00
Avon River Bridge.....	Windsor E. Lt. Co.....	Oct. 13 1892.....	200 00
Baccaro.....	Wm. L. Smith.....	Jan. 9 1907.....	625 00
Barrington Lightship.....	Capt. Jno. H. Lyons.....	June 18 1897.....	980 00
Battery Point.....	Henry Naas.....	Mar. 12 1897.....	465 00
Bear River.....	Wm. Hunt.....	Apr. 10 1905.....	260 00
Beaver Harbour.....	L. G. Cameron.....	Feb. 15 1902.....	220 00
Beaver Island S. E.....	Theo. Sampson.....	Oct. 13 1892.....	140 00
Bear Island.....	Michael O'Brien.....	Dec. 7 1906.....	*405 00
Beaver Island Lt & F. A.....	W. E. O'Leary.....	Feb. 22 1900.....	1030 00
Belliveau Cove.....	J. H. Belliveau.....	" 16 1889.....	140 00
Betty Island.....	P. E. Christian.....	June 29 1904.....	680 00
Biglow Pt. Fr. & B.....	Earnest Mitchell.....	Mar. 31 1909.....	150 00
Bird Island.....	H. G. McKay.....	May 21 1901.....	600 00
Black Rock.....	Chas. Robinson.....	Mar. 16 1885.....	440 00
Black Rock Point.....	M. D. Morrison.....	June 8 1892.....	380 00
Boars Head.....	F. Ruggles.....	May 24 1901.....	520 00
Bass River.....	David Vance.....	Oct. 24 1907.....	140 00
Borden Wharf.....	Fredk. Clarke.....	May 1 1904.....	160 00
Bon Portage.....	Angus Greenwood.....	Jan. 14 1907.....	545 00
Briar Island Light.....	J. N. Peters.....	June 6 1904.....	565 42
Briar Island Fog Alarm.....	B. H. Morrell.....	" 6 1901.....	614 58
Brooklin Pier.....	Howard Godfrey.....	Feb. 6 1887.....	125 00
Bunker's Island.....	F. H. Doane.....	July 27 1904.....	545 00
" Nord End.....	Jas. H. Schoville.....	Jan. 16 1907.....	320 00
Budget.....	Freeman Pride.....	Dec. 7 1906.....	320 00
Burnt Coat.....	Wm. Y. Falkner.....	June 22 1898.....	380 00
Bourgeois Inlet.....	Marian Burke.....	Dec. 1 1902.....	120 00
Campbell Island.....	John A. McDonald.....	Feb. 16 1907.....	220 00
Candlebox Island.....	Benjamin Leblanc.....	Nov. 1 1892.....	465 00
Canso Harbour and False Passage.....	Joseph Long.....	Dec. 31 1896.....	465 00
Canso Harbour Range.....	Wm. J. Mathews.....	" 17 1904.....	320 00
Cape D'Or Fog Alarm.....	F. H. P. Dewis.....	April 13 1898.....	980 00
Cape Fourchu Light and Fog Alarm.....	T. S. Doane.....	Dec. 31 1904.....	1,180 00
Cape Freels Newfoundland Fog Alarm.....	Michall Myrick.....	Sept. 26 1910.....	980 00
Cape George.....	Alex. McEachern.....	Nov. 3 1882.....	680 00
Cape La Ronde.....	John J. Mauger.....	" 16 1898.....	520 00
Cape North, Lt & F. A.....	Norman McLeod.....	Oct. 14 1899.....	500 00
Cape Roseway, Light and Fog Alarm.....	John L. McKenna.....	Mar. 31 1899.....	1,180 00
Cape Sable.....	Arthur Cunningham.....	July 16 1902.....	1,180 00
Cape Race N. F. L.....	John Myrfck.....	Nov. 1 1897.....	2,000 00
Cape Saint George.....	John Murray.....	Sept. 8 1898.....	345 00
Cape St. Lawrence.....	Chas. Jamieson.....	" 21 1893.....	600 00
Cape St. Mary.....	Benj. H. Robichaud.....	July 5 1886.....	520 00
Cape Sharpe.....	Freeman Yorke.....	June 30 1902.....	980 00
Caribou Island.....	D. Falconer.....	Dec. 20 1902.....	520 00
Carter Island.....	Robert McDonald.....	Jan. 4 1886.....	405 00
Caveau Point Range.....	Germain Chiasson.....	Aug. 29 1897.....	260 00
Charlo Cove Light, F. & B.....	Stephen C. Richard.....	Nov. 4 1901.....	206 00
Chebucto Head Light and Fog Alarm.....	Capt. Richard Holland.....	Oct. 1 1906.....	1,180 00
Chester, East, Ironbound.....	Uriah Young.....	Feb. 15 1884.....	625 00
Cheticamp.....	Marcelin Muise.....	Nov. 27 1896.....	440 00

\$25.00 for hand fog horn.



STATEMENT giving names of stations and lightkeepers, &c.—Continued.

NOVA SCOTIA—Continued.

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Chéticamp Range.....	Philip Burgeois.....	May 23, 1898..	260 00
Church Point.....	J. H. Saulnier.....	Aug. 8, 1878..	260 00
Clarke Cove Range.....	Archd. Campbell.....	July 14, 1910..	140 00
Coffins Island.....	James E. Wentzell.....	June 2, 1909..	540 00
Cold Spring Head.....	Willard Vanenburg.....	Oct. 6, 1909..	220 00
Cole Harbour.....	Wm. M. Munro.....	April 23, 1907..	120 00
Cole Harbour Range.....	Geo. C. Jamieson.....	Oct. 21, 1898..	260 00
Country Harbour.....	Henry Burke.....	June 11, 1902..	600 00
Cranberry Island Light and Fog Alarm.....	James P. Hanlon.....	April 10, 1905..	1,180 00
Crichton Head.....	H. H. Crichton.....	May 6, 1874..	320 00
Cross Island Light and Fog Alarm.....	Chas. Wynacht.....	July 1, 1910..	980 00
Croucher Island.....	Geo. Croucher.....	Jan. 31, 1883..	440 00
Dartmouth.....	Wm. Patterson.....	June 3, 1903..	180 00
Devil Island Range, Ft and Bk. ....	W. G. Fulker.....	May 3, 1886..	680 00
Dimock Point.....	Windsor E. Lt. & Power Co. ....		130 00
Digby Pier Pole.....	Edwin Beaman.....	May 29, 1897..	140 00
Dog Island.....	Simon Joyce.....	July 4, 1884..	260 00
Dover Harbour.....	Edward Morash.....	Oct. 1, 1906..	360 00
Eatonville.....	Stewart McAleece.....	July 1, 1910..	85 00
Economy Pole.....	Ingersoll L. McLellan.....	May 16, 1899..	100 00
Egg Island.....	Howe H. Stoddard.....	Mar. 23, 1909..	645 00
Eddy Point.....	Edward Mundell.....	July 23, 1903..	625 00
Flat Point Light and Fog Alarm.....	Thos. O'Neil.....	May 2, 1904..	614 58
" ".....	C. M. Peters.....	Mar. 1, 1910..	565 42
Flint Island Light and Fog Alarm.....	* Howard Tatton.....		
Fourchu Head, Light.....	Geo. Hardy.....	June 16, 1909..	190 00
Fort Point.....	J. E. Misener.....	May 16, 1896..	285 00
Fisherman Harbour.....	Théodore Beiswanger.....	Dec. 8, 1905..	260 00
Gabarus.....	Jas. McDonald.....	Nov. 22, 1890..	290 00
Gilbert Point.....	Jos. W. Melanson.....	Aug. 18, 1894..	300 00
George Island Light and Fog Bell.....	Robt. Ross.....	Jan. 18, 1876..	405 00
Gillis Point.....	Hector McLean (M's son)....	Dec. 18, 1897..	260 00
Glasgow Point.....	Abram Clory.....	July 15, 1894..	260 00
Grande Dique.....	D. A. Kaulback.....	Feb. 17, 1908..	105 00
Grand Etang.....	Séverin B. LeBlanc.....	Mar. 25, 1905..	120 00
Grand Passage, Briar Island.....	Chas. Buckman.....	Jan. 7, 1901..	405 00
Great Bras d'Or Range Fr.....	Alex. Fraser.....	May 13, 1903..	180 00
" " B.....	Malcolm McLean.....	" 13, 1903..	140 00
Granville Centre.....	Henry Rooney.....	Feb. 24, 1904..	140 00
Green Island (Arichat).....	Wm. A. Duann.....	May 12, 1903..	680 00
Gregory Island.....	Michael Sampson.....	" 11, 1907..	260 00
Guion Island.....	James W. Hardy.....	Jan. 30, 1903..	680 00
Glace Bay Range Ft.....	Michael McNeil.....	Nov. 19, 1907..	140 00
" " B.....	Angus McFarlane.....	" 19, 1907..	140 00
Guysboro.....	Moses C. Scott.....	April 19, 1884..	345 00
Harbour au Bouche.....	Capt. Patrick Webb.....	Feb. 19, 1896..	380 00
Herring Cove.....	Wm. Brackett.....	Aug. 28, 1897..	180 00
Henry Island.....	D. A. McLennan.....	" 1, 1907..	600 00
Highland Village.....	W. A. Hennessy.....	May 6, 1905..	100 00
Hobson Island.....	John D. Smeltzer.....	April 10, 1900..	440 00
Horton Bluff.....	Mine S. M. Rathburn.....	Sept. 3, 1879..	380 00
Hubbard Cove.....	Albert S. Coolin.....	Oct. 31, 1903..	380 00
Harbour Island.....	Chas. G. Hodgson.....	June 16, 1908..	440 00
Indian Harbour.....	Henry Boutilier.....	" 6, 1901..	260 00
Ingonish Island.....	Robt. F. Warren.....	Sept. 17, 1903..	520 00
" Harbour.....	Geo. A. Hines.....	April 17, 1909..	230 00
Isaacs Harbour.....	Ira L. Giffin.....	April 28, 1894..	405 00
Isle Haute.....	Percy E. Morris.....	Aug. 2, 1904..	680 00
Iona.....	F. X. S. McNeil.....	Nov 16, 1901..	180 00
Jeddore Rock.....	John W. Mitchell.....	Sept. 29, 1882..	600 00
Jeddore Harbour, Range.....	Jeremiah Harpell, Jr....	Janv, 21, 1901..	320 00

\* Temporary at \$75.00 per month with D. G. Ashton as assistant at \$1.50 per day.



SESSIONAL PAPER No. 21

STATEMENT giving names of stations and lightkeepers, &c.—*Continued.*NOVA SCOTIA—*Continued.*

Name of station.	Name of lightkeeper.	Appointed.	Salary.
Jerome Point.....	Kenneth McAskill.....	July 30, 1901	405 00
Jerseyman Island. . . . .	Alphonse Thériault.....	" 1, 1905	450 00
Jordan Pier.....	John Frederick.....	Dec. 19, 1905	180 00
Kidston Island.....	Donald McRae.....	May 17, 1892	320 00
Kingsport.....	C. H. Huntley.....	June 30, 1899	160 00
Ketch Harbour.....	Chas. Martin.....	May 19, 1905	140 00
L'Ardoise, Range.....	M. J. Sampson.....	June 6, 1900	85 00
" ".....	Thos. Brymer.....	June 6, 1900	85 00
Lahave.....	W. H. Palmer.....	May 22, 1878	345 00
Lingan Head.....	John Walsh.....	July 4, 1904	320 00
Liscomb.....	James M. Hemlow.....	Jan. 2, 1908	320 00
Little Dyke.....	S. Stewart.....	May 1, 1903	100 00
Little Hope.....	Capt. Almon Doggett.....	Oct. 22, 1904	955 00
Little Loraine Harbour.....	Patrick Gallant.....	Jan. 19, 1900	180 00
Little Narrows.....	Alex. W. Ross.....	May 23, 1902	220 00
Liverpool, Dolphin & Bridge.....	Town of Liverpool.....		30 00
Louisbourg.....	Philip Price.....	Nov. 8, 1897	300 85
Lockport.....	L. D. Orchard.....	Jan. 1, 1877	625 00
Louisbourg Harbour Range.....	Thomas Connington.....	Oct. 6, 1897	1,043 15
Louisbourg Fog Alarm.....	D. A. Campbell.....	Mar. 20, 1902	320 00
Mabou (Outer).....	E. Doyle.....	June 14, 1897	120 00
" (Inner).....	Roderick McLean.....	Dec. 7, 1906	120 00
Mainadieu.....	John Pope.....	Sept. 11, 1902	425 00
Maitland Wharf.....	Lockhart Lawrence.....	Feb. 28, 1911	80 00
Margaree.....	John A. McRae.....	Feb. 28, 1907	600 00
Margaree Harbour (Inner).....	Miles A. Dunn.....	June 8, 1901	120 00
" (Outer).....	R. McLellan.....	May 12, 1903	120 00
Margaretville.....	Capt. W. W. Gaucher.....	March 12, 1909	275 00
Mary Joseph.....	Uriah M. Turner.....	May 13, 1910	345 00
Marjories Island.....	Michall McDonald.....	Sept. 22, 1900	150 00
Masstown Pole.....	G. W. Vance.....	June 29, 1898	100 00
Maugers Beach Light and Front Light.....	Wm. Iceton, sr.....	July 6, 1903	980 00
Meteghan River.....	L. C. Comeau.....	Oct. 12, 1875	180 00
Minudie Wharf.....	Frederick Vernon.....	May 1, 1909	85 00
Mitcheners Point.....	William Currie.....	June 15, 1908	260 00
Medway Head.....	Wm. Atkins.....	Nov. 22, 1909	335 00
Medway Harbour.....	Sam. F. Foster.....	Feb. 17, 1899	140 00
Moser Island.....	Samuel Moser.....	Nov. 6, 1885	465 00
Mullin's Point.....	James Mullins.....	June 8, 1892	320 00
Munro Point.....	Malcolm Buchanan.....	Oct. 25, 1905	220 00
McKenzies Point.....	Donald McAulay.....	Aug. 24, 1909	230 00
Musquodoboit Harbour Range 'B'.....	(Arch. M. Kent.....	April 24, 1904	160 00
" " 'F'.....	(Fred. Kent, assistant.....	March 11, 1908	72 23
McNeil's Beach.....	Jeremiah Kent.....	April 29, 1904	187 77
McMillans Point.....	Lauchlin McNeil.....	Aug. 6, 1884	120 00
McNab's Island.....	John B. Chisholm.....	Dec. 2, 1905	285 00
Maastown.....	Mathew Lynch.....	June 23, 1905	440 00
North East Harbour Range.....	C. W. Vance.....	" 29, 1898	100 00
Negro Island.....	Levi Perry.....	June 17, 1899	320 00
Neil Harbour.....	Byron Nickerson.....	July 26, 1897	520 00
North Canso.....	A. A. Buchanan.....	Aug. 14, 1899	285 00
Noël.....	Robie McKay.....	Feb. 4, 1882	440 00
Ouitique Island.....	Geo. C. Davidson.....	April 25, 1906	140 00
Parker Cove.....	Fred. A. Burke.....	Feb. 16, 1907	545 00
Page Island.....	Thomas Milner.....	Aug. 1, 1909	150 00
Parrsboro'.....	Alfred M. Powell.....	Dec. 5, 1905	345 00
Pease Island.....	William Pettis.....	" 6, 1888	545 00
Peggy Point.....	Thos. Baker.....	May 19, 1879	545 00
Pennant.....	Sydney H. Garrison.....	Dec. 22, 1902	520 00
Petite de Grat.....	P. A. Gray.....	June 30, 1903	180 00
Pictou Bar.....	E. Landry.....	Feb. 23, 1897	320 00
Pictou Custom House.....	Geo. H. Carmichael.....	Nov. 18, 1910	520 00
	Alex Currie.....	Oct. 13, 1910	120 00



STATEMENT giving names of stations and lightkeepers, &c.—Continued.

NOVA SCOTIA—Continued.

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Pictou Island, East end.....	Andrew McFarlane.....	Oct. 8, 1892..	600 00
Pictou Island Pier, West end.....	Chas. D. Patterson.....	March 29, 1905..	600 00
".....	Lauchlin Rankin.....	Nov. 7, 1910..	120 00
Pictou Harbour Range.....	David Lowden.....	July 12, 1897..	320 00
Piper Cove.....	John C. McNeil.....	Dec. 18, 1897..	220 00
Pointe Aconi.....	John Charles Bonner.....	Nov. 6, 1903..	320 00
Pointe Prim, Light, Fog Alarm, Digby.....	W. E. Ellis.....	March 8, 1875..	1,180 00
Pointe Tupper.....	Duncan Gillis.....	April 1, 1906..	440 00
Pomquet Island.....	M. Murphy.....	Dec. 18, 1890..	520 00
Porter Point.....	F. W. Bishop.....	April 29, 1904..	180 00
Portapique.....	Sam Creelman.....	May 2, 1901..	100 00
Port Bickerton.....	Theodore O'Hara.....	Jan. 26, 1901..	285 00
Port Felix.....	W. C. Boudrot.....	July 16, 1902..	380 00
Port George.....	Geo. M. Foster.....	Nov. 19, 1897..	180 00
Port Greville, Range.....	Ernest A. Hatfield.....	June 29, 1908..	320 00
Pope Harbour.....	Jas. Bollong.....	Aug. 6, 1877..	440 00
Port Hood.....	J. Allan McDonald.....	May 10, 1899..	380 00
Port Hubert.....	Watson Burgess.....	July 26, 1892..	260 00
Port Mouton.....	J. Oscar Campbell.....	April 29, 1898..	465 00
Port Maitland.....	A. J. Sallows.....	Dec. 28, 1900..	285 00
Port Lorne.....	George D. Corbett.....	May 31, 1904..	380 00
Port Wade.....	Chas. Slocum.....	Feb. 1909..	120 00
Poulamon.....	Bartholomew Boudrot.....	Dec. 7, 1904..	345 00
Pubnico.....	Geo. D. Amero.....	Feb. 6, 1893..	465 00
Pugwash.....	Murdock McLeod.....	Dec. 10, 1897..	440 00
Queensport.....	W. E. Ehler.....	Aug. 13, 1906..	465 00
Quaker Islands.....	Edward Fader.....	Feb. 9, 1910..	405 00
Red Island.....	John F. Campbell.....	Nov. 30, 1901..	180 00
Redman Head.....	John Croft.....	1908..	230 00
*Sable Island, Humane Station.....	R. J. Boutillier, Supt. ....	Nov. 13, 1884..	600 00
St. Ann Harbour.....	Alex. Nicholson.....	June 5, 1905..	260 00
St. Paul Island.....	John Dauphinee.....	Sept. 26, 1910..	600 00
St. Esprit.....	Alex. W. Finlayson.....	April 12, 1905..	680 00
St. Margaret's Bay.....	M. B. Pearl.....	Sept. 1, 1908..	680 00
St. Paul Island West Point.....	Arthur Buchanan.....	Sept. 11, 1910..	600 00
St. Paul Island Fog Alarm, N.E. Point.....	M. J. McLeod.....	July 10, 1906..	880 00
St. Paul Island, L. N.E. Point.....	Wm. Giles.....	Oct. 25, 1907..	600 00
Salter's Head.....	Caleb Smith.....	June 21, 1888..	120 00
Sambro Light and Fog Alarm.....	Alfred Gilkie.....	Jan. 8, 1867..	980 00
Sambro Harbour Light.....	John H. Findlay.....	Dec. 7, 1899..	180 00
Sambro Inner Island Light.....	Ephraim Smith.....	Jan. 3, 1900..	180 00
Scattarie Light and Fog Alarm.....	John T. Martell.....	July 30, 1897..	1,440 00
Seal Island.....	John Crowell.....	Oct. 14, 1899..	1,180 00
Shafners Point.....	Jacob W. Roblee.....	May 29, 1897..	260 00
Sheet Rock.....	Samuel Kenny.....	June 2, 1909..	645 00
Sheet Harbour Passage.....	James Wambolt.....	May 11, 1887..	120 00
Sand Spit (Shelburne Harbour).....	Jas. G. Stephens.....	March 11, 1903..	405 00
Ship Harbour.....	Howard Palmer.....	Feb. 6, 1906..	405 00
Shule Harbour.....	Cap. Clifford Patterson.....	Oct. 26, 1905..	260 00
Sissiboo.....	Jas. Amirault.....	July 11, 1899..	320 00
Spencers Island.....	Baxter McLellan.....	" 21, 1904..	180 00
Spencers Point.....	R. A. Spencer.....	April 1, 1870..	180 00
Steven Point Range.....	Hugh Clark.....	March 31, 1909..	150 00
Stoddart Island.....	Ephraim Larkin.....	March 18, 1906..	345 00
Sydney Bar.....	George Nunn.....	June 20, 1872..	440 00
Sydney Range, Fr.....	J. B. Rudderham.....	Jan. 15, 1905..	380 00
" B.....	A. J. Lewis.....	May 22, 1905..	260 00
Terrence Bay.....	Samuel P. Slaunwhite.....	Oct. 13, 1903..	180 00
Three Top Island.....	W. L. Munroe.....	" 28, 1879..	440 00
Tor Bay.....	Jas. M. Webber.....	May 10, 1898..	465 00
Troop Point.....	Ralph Troop.....	Jan. 23, 1906..	180 00
Tusket River.....	Severin Leblanc.....	July 28, 1899..	380 00

\* With board for self, family and assistants and allowance for salaries of staff.



SESSIONAL PAPER No. 21

STATEMENT giving names of stations and lightkeepers, &c.—Continued.

NOVA SCOTIA—Concluded.

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Victoria Beach. ....	James Hinds. ....	March 7, 1901.	180 00
Wallace Harbour. ....	George Boyle. ....	July 13, 1903.	260 00
Walton Harbour . . . . .	Lewis E. Burgess. ....	" 13, 1903.	200 00
Wedge Island . . . . .	Wm. R. Church. ....	March 27, 1907.	705 00
West Head Sable Island Cape . . . . .	Wm. B. Smith, jr. . . . .	April 12, 1890.	345 00
West Ironbound Island. ....	Frederrick Wolfe. ....	Dec. 19, 1910.	380 00
Westhaver Island. . . . .	Alfred Strum. ....	Sept. 25, 1888.	320 00
Westport. ....	E. W. Suthern. ....	April 12, 1890.	345 00
Whitehead . . . . .	Patk. Conway. ....	Sept. 26, 1910.	150 00
Whycocomah. ....	Murdock Matheson. ....	Sept. 11, 1884.	120 00
Woods Harbour . . . . .	Jas. E. Goodwin. ....	Aug. 27, 1900.	345 00
Wolfville. ....	J. L. Franklin. ....	April 4, 1902.	180 00
Yarmouth Harbour, Corner Beacon. ....	C. J. O'Hanly. ....	May 6, 1905.	260 00

NEW BRUNSWICK.

Andersons Hollow Light. ....	Aaron B. Copp. ....	March 30, 1903.	205 00
Beaver Harbour. ....	J. Melvin Eldridge. ....	May 2, 1904.	405 00
Beacon (St. John Harbour). ....	A. F. Shepherd. ....		565 00
Bliss Island. ....	James H. McLeod. ....	Oct. 17, 1900.	625 00
Bathurst . . . . .	Geo. C. Sutherland . . . . .	March 20, 1882.	320 00
Belyeas Point . . . . .	Mrs. Westfield Day. ....	Nov. 21, 1906.	140 00
Baie du Vin. ....	John McLeod. ....	Jan. 1, 1910.	275 00
Bouctouche Bacon. ....	H. B. Robicheaud. ....	June 21, 1884.	180 00
" Bar. ....	Jadus P. Cormier. ....	July 26, 1902.	320 00
Big Duck Island Fog Alarm. ....	Rupert Burnham . . . . .	June 25, 1906.	880 00
Bridge Point Light. ....	Harry Upton. ....	March 14, 1910.	125 00
Belle Ile (Hatfields Landing). . . . .	Thos. W. Spragg. ....	June 27, 1903.	140 00
Bellony Point. ....	Edward H. Egan. ....	May 17, 1902.	220 00
Cape Enrage Fog Alarm and Light. . . . .	James G. Barbour. ....	" 11, 1888.	980 00
Cape Jourimain. ....	A. J. P. Bent. ....	Jan. 26, 1901.	440 00
Cape Tormentine. ....	J. R. Barry. ....	March 26, 1906.	220 00
Caraquet . . . . .	G. Laintaigne . . . . .	June 16, 1888.	320 00
" Lower Light. ....	Frederic F. Doucet, jr. . . . .	Oct. 14, 1903.	120 00
" " . . . . .	Patrice L. Légère. ....	" 14, 1903.	120 00
Coxs Point . . . . .	Alexander McBain. ....	May 26, 1898.	140 00
Cassies Point . . . . .	Placide Legere. ....	June 2, 1909.	*360 00
Cape Spencer Fog Alarm. ....	John E. Collins. ....	Nov. 23, 1909.	1,260 00
Cherry Island . . . . .	Harry Chaffey . . . . .	Oct. 14, 1903.	260 00
Cocagne Range . . . . .	Dominique Gognen. ....	" 14, 1907.	220 00
Church Point (Bouctouche). ....	D. O. Maillett. ....	July 7, 1883.	260 00
Dalhousie Harbour. ....	James Arseneau. ....	June 18, 1894.	180 00
Dipper Harbour. ....	Fenwick Belmore. ....	March 12, 1895.	205 00
Douglas Island and P.W. Montgomery's Isld	Henry McNeil. ....	Jan. 1, 1880.	380 00
East Hd. Musquash. ....	Chas. P. Hamm . . . . .	" 14, 1879.	465 00
Escuminac Alarm and Alarm. ....	Kenneth R. McLennan. ....	March 7, 1892.	1,180 00
Fox Island Upper, Light. ....	Seymour Williston. ....	June 4, 1902.	380 00
" Lower " . . . . .	George Mills. . . . .	" 23, 1897.	320 00
Fanjoy's Point. ....	William Fanjoy . . . . .	Déc. 15, 1897.	140 00
Flewelling's Wharf. ....	Mary Flewelling. ....	April 12, 1890.	140 00
Fort Monckton . . . . .	W. A. Casey. ....	Jan. 1, 1900.	130 00
Fort Folly. ....	Amos P. Belliveau. ....	June 23, 1903.	345 00
Gagetown. ....	Fraer Fox. ....	April 22, 1904.	140 00
Grindstone Island, Alarm . . . . .	James R. Russell. ....	Jan. 13, 1899.	980 00
Gannet Rock, Alarm. ....	Sydney Tatton. ....	March 21, 1911.	1,200 00
Green Head. ....	Thos. E. Looney. ....	July 14, 1886.	220 00
Grant Beach. ....	W. A. Davidson . . . . .	April 3, 1909.	190 00
Gull Cove. ....	Lewis Frankland. ....	Nov. 14, 1902.	140 00

\* \$25 for foghorn.



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STATEMENT giving names of stations and lightkeepers, &c.—*Continued.*NEW BRUNSWICK—*Continued.*

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Goose Lake.....	John D. Brune.....	May 11, 1888..	380 00
Grand Harbour.....	Lloyd C. Dakin.....	" 2, 1904..	625 00
Grand Manan, Fog Alarm.....	George T. Tatton.....	Oct. 16, 1866..	980 00
Gray's Landing.....	B. F. McCutcheon.....	March 6, 1907..	120 00
Head Harbour Light and Fog Alarm.....	Chas. D. Hyliard.....	June 29, 1904..	1,105 00
Heron Island.....	John A. D. Robertson.....	April 11, 1902..	320 00
Hendry's Point, Washademoak Light.....	Miss A. M. Hendry.....	March 15, 1899..	140 00
Hay Island.....	Joseph Allain.....	May 21, 1895..	260 00
Harpers Point.....	J. H. Blakley.....	July 30, 1910..	120 00
Hampstead.....	Edgar B. Palmer.....	Nov. 6, 1900..	140 00
Jemseg.....	Geo. F. Nevers.....	" 24, 1884..	140 00
Kouchibouguac.....	Henry Gagnon.....	June 26, 1908..	260 00
Letete Fog Alarm and Light.....	Sydney Dines.....	March 27, 1907..	780 00
Light Ship, Miramichi.....	Capt. Robt. McLean.....	April 12, 1902..	980 00
Little Belledune (Miscou Gully).....	J. A. Roberty.....	Feb. 21, 1905..	380 00
Little Shippegan.....	Robt. McConnell, Jr.....	Sept. 9, 1887..	180 00
Long Point Bellisle Light.....	James A. Bates.....	June 1, 1907..	140 00
Machias Seal Island Light and Fog Alarm.....	W. L. Harvey.....	July 8, 1904..	1,440 00
McFarlane Point.....	Alex. McFarlane.....	Dec. 9, 1909..	105 00
Midgie Bluff Light.....	Arthur Henderson.....	Oct. 4, 1894..	200 00
Miscou.....	Joseph L. Robichaud..	Nov. 11, 1902..	980 00
Musquash.....	R. P. McDonald.....	Jan. 28, 1901..	180 00
Middle Island.....	Michael Murray.....	April 10, 1902..	320 00
Mark Point.....	Wm. Maloney.....	Nov. 7, 1903..	220 00
McMann Point.....	Harvey R. McMann.....	Jan. 2, 1901..	140 00
McFarlane Point.....	Alex. McFarlane..	Dec. 3, 1909..	105 00
Mulholland Point.....	Alvin Parker.....	June 13, 1901..	260 00
Neguac.....	John Robinson.....	" 30, 1893..	320 00
Neguac Range.....	Chas. McIntosh.....	Dec. 10, 1892..	180 00
Negrotown Point.....	E. Ross.....	March 5, 1878..	600 00
Newcastle.....	Blackstock Matheson..	April 18, 1898..	140 00
Oak Point, St. John River Light.....	Mrs Bessie May Francombe..	Dec. 20, 1907..	140 00
Oromocto Shoals Light.....	Sadie Brennan.....	Jan. 1, 1910..	150 00
Oak Point (Miramichi) Light.....	John Bowie.....	June 2, 1906..	180 00
Outhouse Pt. Light.....	Saml. R. Eagett.....	.....	140 00
Partridge Island Light and Fog Alarm.....	Hugh Andrews.....	May 1, 1906..	1,440 00
Pokemouche Light.....	Michael Hayden.....	Oct. 17, 1888..	380 00
Portage Island Light.....	Peter Morrison, Jr.....	May 17, 1892..	405 00
Pte Lepreaux.....	Robert L. Belding.....	June 30, 1905..	480 00
Pte Lepreaux Fog Alarm.....	Frank Frauley.....	" 30, 1905..	960 00
Pea Point Light.....	Elias C. Dickson.....	Nov. 16, 1898..	405 00
Passamaquoddy Bay Light, West.....	Joseph Kilpatrick.....	Feb. 3, 1898..	625 00
" " " East.....	Theobald Rooney.....	Jan. 1, 1896..	545 00
Preston Beach.....	Stanislaus Preston.....	July 11, 1889..	220 00
Petit Rocher.....	J. B. Boudreau.....	Feb. 26, 1896..	180 00
Peck Point Light and Fog Alarm.....	Edwin Lockhart.....	Oct. 20, 1903..	680 00
Poquesuide Light.....	Octave Hachey.....	July 12, 1881..	345 00
Palmer's Point.....	Alfred Le Bouthiller.....	March 1, 1911..	285 00
Pointe Brulee.....	Frank Gould.....	Jan. 13, 1899..	130 00
Pointe du Chene.....	Thomas Harts.....	Feb. 17, 1905..	140 00
Perry Point.....	John Carney.....	Sept. 25, 1900..	140 00
Quaco.....	Charles Brown.....	Nov. 25, 1884..	490 00
" Breakwater.....	Fred M. Cochran.....	Mar. 25, 1892..	205 00
" Fog Alarm.....	L. B. Bradshaw.....	Aug. 2, 1887..	490 00
Robertson Point.....	Chas. W. Robertson.....	June 30, 1897..	140 00
Richibucton.....	Peter F. Richard.....	May 30, 1895..	320 00
" Beacon.....	Jude Robichaud.....	June 16, 1902..	260 00
" Bar.....	Joseph F. Richard.....	June 16, 1902..	260 00
" N. Beach.....	Fredk. McNeil.....	May 3, 1909..	190 00
Reids Point.....	Whitney Lamb.....	April 1, 1909..	125 00
Railway Wharf, Moffat Landing.....	Geo. Cumming.....	Jnn. 1, 1880..	180 00
Sapin Point.....	Victor Daigle.....	May 28, 1903..	100 00
South Tracadie.....	Wm. C. Ferguson.....	Mar. 23, 1898..	260 00



SESSIONAL PAPER No. 21

STATEMENT giving names of stations and lightkeepers, &c.—*Continued.*

NEW-BRUNSWICK—*Concluded.*

Name of station.	Name of lightkeeper.	Appointed.	Salary.	
			\$	cts.
Swallow Tail .....	Geo. Y. Dalzell. . . . .	Mar. 18, 1893..	625	00
St. Andrew's .....	W. J. Pendlebury. . . . .	April 10, 1889..	405	00
St. Louis Gully .....	Honoré H. Chiasson. . . . .	July 16, 1909..	150	00
St. John Harbour, L. & F. Bell. . . . .	Andrew Shepherd. . . . .	Dec. 9, 1909..	565	00
Spruce Point .....	Bertie G. Hannah. . . . .	Sept. 15, 1892..	220	00
Sand Point .....	Richard Wagner. . . . .	June 7, 1883..	140	00
Shediac .....	M. Robinson. . . . .	Dec. 29, 1873..	380	00
Southern Wolf .....	Ethelbert Wright. . . . .	Mar. 6, 1906..	705	00
Shippigan .....	Louis de Grace. . . . .	June 21, 1910..	345	00
Shippigan Gully, Range Lights. . . . .	John de Grace. . . . .	June 4, 1889..	260	00
Sheldrake Island. . . . .	John A. Morrison. . . . .	Jan. 3, 1910..	335	00
Scuth West Head .....	Thos. P. Foster. . . . .	Sept. 26, 1910..	625	00
Stonehaven .....	Mrs Elizabeth Scott. . . . .	July 8, 1904..	180	00
The Cedars .....	Forrest Williams. . . . .	May 11, 1897..	140	00
Tracadie .....	Fabien D. Basque. . . . .	Aug. 20, 1904..	380	00
Tiner's Point Fog Alarm .....	Alfred Splane. . . . .	Aug. 21, 1905..	980	00
Tiner's Point Submarine Bell. . . . .	Alfred Splane. . . . .	Feb. 1908..	250	00
Wilmots Bluff .....	J. H. True. . . . .	Sept. 12, 1899..	140	00

QUEBEC AGENCY.

Algernon Rock and Stone Pillars .....	George Leclerc. . . . .	July 30, 1901..	880	00
Amherst Island .....	William Cormier. . . . .	April 26, 1871..	520	00
Amherst Wharf .....	Patrick J. Brophy. . . . .	Nov. 15, 1910..	80	00
Anse-à-Beaufils .....	"	22, 1910..	80	00
Anse à l'Eau .....	Auguste Gingras. . . . .	April 1, 1909..	100	00
Anse St. Jean .....	F. Lavoie. . . . .	May 13, 1889..	100	00
Anticosti S. W. Pt. . . . .	Z. Lemieux. . . . .	July 10, 1900..	880	00
" S. W. Pt. . . . .	Alfred Malouin. . . . .	" 1, 1877..	980	00
Bagot Bluff, Anticosti, F. A. . . . .	Emile Laprise. . . . .	April 18, 1903..	1,180	00
Barachois de Malbaie .....	X. Lemieux. . . . .	Mar. 6, 1903*.	120	00
Bellechasse .....	Joseph Bilodeau. . . . .	June 15, 1903..	520	00
Belleisle, S.W. End .....	Octave Dubois. . . . .	Sept. 6, 1910..	1,500	00
" N.E. End .....	Paul Thomas. . . . .	July 8, 1904..	1,700	00
Bersimis "R" .....	Henri Granier. . . . .	Aug. 8, 1903..	180	00
Bicquette .....	Louis Pinault. . . . .	Oct. 6, 1900..	980	00
Bird Rocks .....	Wilfred Bourque. . . . .	Nov. 15, 1905..	1,700	00
Brandy Pots .....	Alphonse Richard. . . . .	Oct. 7, 1878..	600	00
Brion Island .....	Procule Chevrier. . . . .	June 23, 1905..	600	00
Bonaventure River Wharf .....	Alexis Bourque. . . . .	Feb. 25, 1909..	85	00
Bonaventure Point .....	Pitre Bourdage. . . . .	July 25, 1903..	320	00
Cap à l'Aigle .....	Electric Lt. . . . .			
Cap Anguille. . . . .	Alfred Patry. . . . .	Oct. 9, 1908..	1,440	00
Cap Brulé. . . . .	W. Labranche. . . . .	May 2, 1905..	600	00
Cap au Corbeau .....	Edouard Codé. . . . .	Oct. 26, 1905..	120	00
Cap aux Oies. . . . .	Cap. Thos. Tremblay. . . . .	May 1, 1888*.	380	00
Cape Bauld .....	Edmond Fontaine. . . . .	Sept. 1, 1905..	1,260	00
Cap Chatte .....	Luc Côté. . . . .	July 26, 1901..	880	00
Cap Chatte Range .....	Urbain Chrétien. . . . .	" 7, 1909..	125	00
Cap à l'Est .....	Gonzague Sergerie. . . . .	Oct. 9, 1910..	600	00
Cape Dogs .....	Ludger Bergeron. . . . .	Sept. 11, 1909..	905	00
" Despair .....	Charles Bourget. . . . .	Nov. 1, 1897*.	600	00
" Gaspé .....	Frs. Le Huquet. . . . .	Oct. 22, 1896..	880	00
" Madeleine "B" .....	J. F. Sasseville. . . . .	June 9, 1886..	980	00
" Norman .....	J. W. Campbell. . . . .	April 12, 1890..	1,180	00
" Ray .....	E. H. Rennie. . . . .	Oct. 19, 1884..	1,260	00
" Rosier .....	Eug. Costin. . . . .	Nov. 4, 1890..	1,180	00
" Salmon .....	Louis Bouchard. . . . .	May 16, 1896..	980	00
Carleton Wharf .....	Francis Cullin. . . . .	July 12, 1907..	100	00
" Point .....	Louis Bujold. . . . .	May 25, 1899*.	440	00



STATEMENT giving names of stations and lightkeepers, &c.—*Continued.*QUEBEC AGENCY—*Continued.*

Name of station.	Name of light keeper.	Appointed.	Salary.
			\$ cts.
<i>Chicoutimi Lights.</i>			
Chicoutimi Wharf	André Harvey	May 30, 1889	100 00
Post St. Martin "B"	Frs. Gauthier	April 22, 1907	120 00
" " "F"	Alfred Pilote	" 22, 1907	120 00
Riv. du Moulin "B"	Luce Gourdeau	May 1, 1905	120 00
" " "F"	George Tremblay	" 1, 1905	120 00
Riv. Caribou "B"	H. Simard	Mar. 1, 1905	120 00
" " "F"	John Savard	" 1, 1905	120 00
Riv. Valin "R"	Gédéon Lavoie	June 7, 1909	90 00
" " "F"	Maximin Lavoie	Summer, 1893	90 00
Savard Valin "R"	Dorilas Savard	July 18, 1904	180 00
Chlorydorme "R"	Magloire Coulombe	Oct. 15, 1904	180 00
Crane Island	Désiré Vézina	Apr. 25, 1904	440 00
Domaine "B"	Xavier Emond	May 30, 1908	120 00
" " "F"	Edouard Guérard	" 30, 1908	120 00
Duthies P.	B. V. Willett	Oct. 16, 1903	140 00
Eboulements	Capt. Thos. Tremblay	Aug. 24, 1910	80 00
Egg Island	Tancrède Pelletier	July 1, 1901	680 00
Entry Island	George F. Cullins	" 30, 1901	380 00
Étang du Nord	N. Arsenault	" 21, 1891*	520 00
Escoumains "R"	Saguenay Lumber Co.	Sept. 10, 1906	150 00
Fame Point	James Ascah	" 2, 1880	1,440 00
Father Point	J. McWilliams	May 20, 1893	1,440 00
Flower Island	Joseph Lavallée	Apr. 12, 1905	780 00
Fox River "R"	André Samuel	Oct. 15, 1904	180 00
Gascons, Wharf	John Mourant	June 8, 1906	100 00
Gaspé Basin	William Lindsay	" 14, 1900	120 00
Godbout	N. A. Comeau	Mar. 31, 1910	125 00
Grande Entrée, Range Lights	André Turbide	Apr. 6, 1907	140 00
Grande Ile Kamouraska	Arthur Levesque	Feb. 9, 1901	600 00
Grand Papos Wharf	Edward Malloy	Apr. 12, 1910	80 00
Grande Rivière	William Bisson	Oct. 22, 1896	*220 00
" Wharf	J. B. Couture	May .. 1903	100 00
Grande Vallée, Range	A. Fournier	Oct. 15, 1904	180 00
Green Island	R. W. Lindsay	Sept. 28, 1888	880 00
Greenly Island	Napoléon Côté	Oct. 12, 1903	1,440 00
Griffons, Cove "R"	H. Boulet	June 29, 1908	180 00
Grosse Roche	Nazaire Morin	" 25, 1906	500 00
Heath Point	Christopher Huber	July 27, 1907	980 00
Hospital Rock	Victor Lavoie	Apr. 1, 1909	335 00
Ile de Mai	R. H. Scougall	Aug. 4, 1910	180 00
Ile au Bélier	Wm. Gaudreault	Oct. 30, 1901	150 00
Ile aux Coudres	Eusèbe Boudreault	Apr. 20, 1906	100 00
Ile Bonaventure	J. B. Bujold	May 5, 1909	85 00
Little Métis	Elisée Caron	" 29, 1909	540 00
Magpie "R"	Albert Dupuis	Sept. 14, 1907	180 00
Maquereau Point	A. Bertrand	Dec. 21, 1877	*440 00
Matane	Joseph Banville	Feb. 1, 1897	520 00
Mont Louis "R"	Louis Létourneau	May 22, 1906	180 00
St. Thomas de Montmagny	Eugene Nicole		120 00
Murray Bay	Electric Light	Dec. 31, 1907	
Natashquan	Dovilas Landry		260 00
New Carlisle, Wharf	John Chisholm	Jan. —, 1909	90 00
Newport	Salomon Grenier	June 3, 1897	*220 00
New Richmond, Wharf	William Campbell	Feb. 17, 1910	80 00
Oak Point, Ristigouche, "R"	Thomas Harper, Jr.	Jan. 1, 1907	150 00
<i>Orleans Range—</i>			
Ange-Gardien "B"	Olivier Paré	Nov. 10, 1902	120 00
" " "F"	Jean Gagné	Sept. 28, 1909	105 00
Sainte-Famille "B"	Alphonse Pâquet	Oct. 19, 1885	120 00
" " "F"	Alfred Poulin	" 26, 1896	130 00
Saint-Pierre "B"	Jacques Roberge	May 16, 1908	120 00
" " "F"	Olivier Vézina	Oct. 28, 1897	120 00

\* With \$25 for blowing foghorn.



SESSIONAL PAPER No. 21

STATEMENT giving names of stations and lightkeepers, &c.—Continued.

QUEBEC AGENCY—Continued.

Name of station.	Name of light keeper.	Appointed.	Salary.	
			\$	cts.
Paspébiac.....	John Loisel.....	Aug. 27, 1899..	200	00
Percé, Wharf.....	Emesie Bourget Jr.....	Jan. 20, 1909..	85	00
Perroquet, Island.....	Placide Vigneau.....	Sept. 19, 1892..	700	00
Pilgrims.....	H. Morin.....	Apr. 29, 1898..	520	00
Point Peter.....	John Thomas St. Croix.....	Sept. 11, 1909..	540	00
Point Amour.....	Thomas Wyatt.....	Oct. 18, 1889..	1,440	00
Pointe à Basile "B".....	Antonio Demers.....	July 22, 1904..	220	00
" " "F".....	Elzéar Douville.....	Feb. 6, 1904..	220	00
Point aux Esquimaux, "R".....	J. F. Boudreault.....	Oct. 29, 1907..	188	00
" aux Orignaux.....	Dominique Levesque.....	" 5, 1903..	440	00
" Blene.....	Armand Tessier.....	June 9, 1904..	100	00
" des Monts.....	Victor Fafard.....	Aug. 1, 1899..	880	00
" Noire "R".....	J. E. Boulianne.....	Jan. 18, 1904..	320	00
" Riche.....	N. Breton.....	May 16, 1896..	680	00
Port-Daniel.....	F. X. Langlois.....	Feb. 22, 1907..	120	00
" West.....	Arthur Horrie.....	Jan. 1, 1907..	180	00
Portneuf (en-bas,) "R".....	Pierre Poitras.....	Oct. 16, 1904..	180	00
" " ".....	Edmond Tremblay.....	May 7, 1903..	490	00
Quebec Harbour.....	Quebec Harbour Commission.....		60	00
Red Islet.....	P. T. Fraser.....	April 28, 1894..	705	00
Rimouski Wharf.....	Ubalde Lavoie.....	May 22, 1906..	100	00
Rivière à la Martie.....	August Leclerc.....	Sept. 3, 1902..	1,180	00
" à la Pipe.....	Alex. Morin.....	Oct. 3, 1901..	120	00
Rivière du Loup.....	F. E. Gilbert.....	July 2, 1897..	120	00
Roberval.....	Roberval Electric Light Co.....	June 28, 1898..	100	00
Sand Beach Point.....	Thomas Kennedy.....	Aug. 9, 1904..	600	00
Sainte-Anne "B".....	Alphonse Poulin.....	Oct. 26, 1898..	120	00
" "F".....	César Dufour.....	1909..	120	00
St. Alphonse.....	Pitre Tremblay.....	June 19, 1895..	100	00
St. Antoine Range.....	Léonidas Fréchette.....	March 4, 1902..	140	00
".....	François Doré.....	April 14, 1903..	180	00
St Charles de Caplan.....	Frank Dion.....	May 10, 1909..	85	00
St. Godfroi Wharf.....	Jacques Grenier.....	3, 1909..	85	00
Ste Anne des Monts "R".....	X. Lefrançois.....	Oct. 15, 1904..	180	00
Ste Croix.....	Willie A. Thurber.....	Mar. 18, 1901..	260	00
" "R" "F".....	Veuve D. Racette.....	Dec. 1900..	120	00
" "B".....	T. Croteau.....	Mar. 28, 1901..	120	00
St. François, "B".....	Louis Marceau.....	April 1, 1884..	140	00
" "F".....	Jos. Lepage, Jr.....	" 20, 1876..	125	00
St. Iréné.....	Electric Light.....			
St. Jean, I.O.....	Théophile Pouliot.....	June 21, 1900..	335	00
Ste. Félicité F. A.....	François Bélanger.....	Jan. 14, 1905..	780	00
St. Omer Wharf.....	Joseph E. Landry.....	Nov. 12, 1910..	80	00
St. Pancras Pt.....	Pamphile Gravel.....	April 21, 1910..	335	00
St. Siméon Wharf.....	Henri Savard.....	Oct. 25, 1906..	100	00
St. Laurent, I.O.....	Joachim Godbout.....	April 15, 1904..	380	00
St. Pétronille.....	Nap. Ferland.....	Sept. 3, 1904..	320	00
Seven Islands.....	Horace Desmeules.....	May 20, 1898..	1,030	00
Trois-Pistoles Wharf.....	Cyrice LeBel.....	Oct. 25, 1907..	125	00
Upper Traverse Pier.....	Alfred Fournier.....	April 14, 1900..	4980	00

\* \$25 for blowing Fog horn.

† \$25 for Fog bell.



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STATEMENT giving Names of Stations and Lightkeepers, &c.—*Continued*

## MONTREAL AGENCY.

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Argenteuil Baie.	Pierre Giroux.	Apr. 12, 1909.	125 00
Ash and Bloody Islands, "R"	Jas. A. McGee.	May 26, 1903.	320 00
Barre à Boulard, "F"	Nap. Daigle.	" 26, 1904.	320 00
" " "B"	Philéas Abel.	June 23, 1903.	140 00
Batiscan, "F"	Arcade La Haie.	May 26, 1909.	190 00
" " "B"	Joseph L. Brunel.	Apr. 27, 1905.	140 00
Becancour, "F"	Omar Gingras.	Oct. 24, 1905.	260 00
" " "B"	A. Tourigny.	" 24, 1905.	180 00
Beauharnois.	Alphonse Daoust.	Apr. 14, 1903.	320 00
Bellerive Park.	Chas. Roy.	Aug. 5, 1904.	260 00
Boucherville.	Hiliodore Carrière.	" 26, 1903.	140 00
Cap Charles, "B"	Amédée Baron.	June 26, 1901.	140 00
" " "F"	Alcide Boisvert.	" 26, 1901.	140 00
Cap Madeleine, "F"	Moïse Hébert.	May 11, 1888.	140 00
" " "B"	G. Vaillancourt.	Oct. 1, 1906.	180 00
" " U.R. "F"	Pierre Toupin.	Apr. 26, 1905.	140 00
" " "B"	Elzéar Beaumier.	Oct. 1, 1905.	180 00
" " Village, "R"	Ernest Lacourse.	Mar. 13, 1906.	260 00
Caron Point.	Honoré Sauvé.	May 1, 1889.	120 00
Champlain, "B"	Louis Bertrand.	Sept. 12, 1902.	180 00
" " "F"	Philippe L. Carignan.	Oct. 1, 1902.	140 00
" " Upper, "B"	Louis Bothier.	Apr. 1, 1906.	180 00
" " "F"	Octave Massicotte.	Oct. 20, 1910.	120 00
Chambly Basin, "R"	Jos. de Senneville.	May 26, 1907.	220 00
" Canton, "R"	Joseph Savage.	" 10, 1907.	220 00
Contrecoeur Course, "B"	Norbert Duval.	Apr. 22, 1904.	180 00
" " "F"	Jos. Arpin.	Sept. 12, 1902.	140 00
Contrecoeur Trav., "B"	Alfred Lacroix.	July 26, 1904.	180 00
" " "F"	Joseph Alcidas Lacroix.	Apr. 14, 1904.	150 00
" Verchères "B"	Ernest Guyon.	Nov. 11, 1904.	220 00
" " "F"	Honoré Tétrault.	" 11, 1904.	220 00
Dorval and Pte. Claire.	Benj. Gloude.	Aug. 1, 1907.	400 00
Gallia Bay, U.R.	Elzéar Cantara.	May 3, 1904.	350 00
" L.R.	Louis Péloquin.	June 8, 1906.	350 00
Guard Pier.	Benj. Rodier.	Sept. 10, 1907.	500 00
Gentilly, "B"	Delphis Mailhot.	Apr. 2, 1907.	220 00
" " "F"	Alphonse Lebleu.	" 6, 1907.	320 00
Graham, Ont., "F"	Wm. Graham.	Dec. 19, 1904.	100 00
" " "B"	Xavier Sicard.	Apr. 29, 1905.	100 00
Grenville Range.	William Davison.	Mar. 29, 1910.	220 00
Green Shoal.	Albert Laberge.	May 20, 1902.	260 00
Grondines, "B"	Jos. Sauvageau.	June 20, 1904.	180 00
" " "F"	Eugène Mayrand.	" 20, 1904.	260 00
" Pte., "B"	Emile Houde.	" 20, 1904.	180 00
" " "F"	Achile Sauvageau.	" 20, 1904.	380 00
Hochelaga, "R"	Ulric Paquet.		220 00
Ile à la Bague.	Louis Dupuis.	Apr. 14, 1903.	260 00
Ile à l'Aigle, "B"	Eus. Savarie.	May 1, 1903.	180 00
" " "F"	F. X. Lapointe.	" 1, 1903.	180 00
Ile de Pads, "R"	Zotique Courchêne.	Aug. 8, 1907.	380 00
Ile des Barques.	Omer Salvail.	May 6, 1897.	380 00
Ile de Grâce, "B"	Louis Letendre.	" 1, 1906.	180 00
" " "F"	Edouard Paul.	Sept. 7, 1871.	320 00
" du Moine, "B"	Paul Mongeau.	Dec. 27, 1906.	220 00
" " "F"	Etienne Provençal.	" 27, 1906.	180 00
" au Raisin, "R"	Louis Boucher.	Apr. 13, 1898.	380 00
" Bouchard, "B"	Alphonse Chicoine, jr.	June 16, 1903.	150 00
" " "F"	Ivon Laporte.	Apr. 21, 1902.	220 00
" Deslauriers, "F"	Nap. Langevin.	Dec. 18, 1906.	220 00
" " "B"	Ph. Choquet.	Mar. 13, 1908.	140 00
" Ronde.	Herman Charland.	Aug. 1, 1907.	500 00
" Perrot.	Andrew McNab.	May 20, 1905.	180 00
" Ste. Thérèse, U.R.	Sam Reeves.	Oct. 12, 1870.	380 00
" " L.R.	Joseph Malo.	Feb. 1, 1897.	220 00
Jones Island.	Joseph Charlebois.	Apr. 22, 1909.	125 00



SESSIONAL PAPER No. 21

STATEMENT giving names of stations and lightkeepers, &c.—*Continued.*

MONTREAL AGENCY *Continued.*

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ c.
Lacolle.....	W. G. Whitman.....	Jan. 18, 1904..	220 00
L'Anglais Pte.....	Antoine Langlois.....	July 11, 1888..	220 00
Lake Memphremagog :—			
Black Point.....	J. H. Peters.....	June 1, 1881..	100 00
Lead Mines.....	W. Wheeler.....	June 1, 1881..	100 00
Molson Island.....	Mlle E. G. Molson.....	May .., 1878..	130 00
Georgeville.....	C. E. Martel.....	May 19, 1891..	100 00
Wadleigh Point.....	J. A. Patterson.....	June 1, 1891..	100 00
Witch Rock.....	D. E. Peters.....	" 1, 1891..	260 00
Lachine and Range.....	Arthur Lizotte.....		260 00
Longue Pointe and Trav. Range.....	Arthur Valiquette.....		180 00
L'Original, Ont. ....	Grégoire Seguin.....	May 8, 1894..	180 00
Louisville "R".....	Onésime Plante.....	June 23, 1907..	220 00
Lavaltrie "R".....	Eloi Lacombe.....	" 2, 1909..	335 00
Light Ship No. 3 (L. St. Peter).....	J. B. Weaner.....	May 9, 1904..	680 00
L'islet Richelieu.....	Jos. Auger.....	Jan. 20, 1905..	220 00
Lotbinière "B".....	George Beaudet.....	" 4, 1883..	140 00
" " "F".....	Mme L. Beaudet.....	Sept. 3, 1903..	140 00
McTavish Pt.....	J. Campbell.....	Nov. 18, 1896..	180 00
Nicolet River "B".....	Edmond Héroux.....	Dec. 5, 1906..	180 00
" " "F".....	Didier Héroux.....	" 5, 1906..	320 00
North half Way Pt. "R".....	Joseph Lord.....	May 5, 1903..	260 00
Oka.....	Gédéon Lamouche.....	Nov. 3, 1910..	120 00
Oka Wharf.....	D. Guindon.....	" 3, 1910..	80 00
Papineauville.....	Joseph Chabot.....	June 17, 1897..	180 00
Petite Trav. Contrecoeur "B".....	Oliva Casse.....	Nov. 18, 1910..	140 00
" " "F".....	Louis Cuisse.....	April 22, 1904..	140 00
Platon Range.....	Chas. Beaudet.....	Aug. 24, 1894..	220 00
Pointe à Cadieux.....	Simon Poirier.....	May 4, 1904..	260 00
Pointe aux Anglais.....	Lucas H. Masson..	July 10, 1907..	320 00
Pointe aux Citrouilles.....	Wm. Brummelle.....	May 26, 1908..	275 00
Pointe du Lac.....	Sylva Paquin.....	" 2, 1900..	180 00
Portneuf Range.....	Josephine Rodrique.....	Dec. —, 1900..	380 00
Port St. Francis.....	Frs Manseau.....		380 00
Repentigny "B".....	L. L. Rivet.....	April 28, 1894..	140 00
" " "F".....	J. B. Lachapelle.....	Feb. 1, 1861..	140 00
Rigaud.....	Onésiphore Malette.....	Sept. 14, 1910..	180 00
Richelieu River New Lights			
Batture St. Antoine.....	Arthur Collette.....	Sept. 15, 1910..	25 00
Cardinal Traverse.....	Pierre Morin.....	Nov. 23, 1910..	25 00
Church Pt. Trav. "B".....	Félix Messier.....	Oct. 6, 1910..	12 50
" " "F".....	Alcime Bourias..	" 6, 1910..	12 50
Hébert Point.....	Xavier Hébert.....	Sept. 30, 1910..	25 00
Laperle Trav.....	Ls. Jussaume.....	Nov. 23, 1910..	25 00
Marcotte Traverse.....	Flavien Marcotte.....	Sept. 15, 1910..	25 00
Petite Ile Course.....	Elie Leblanc.....	Sept. 30, 1910..	25 00
St. Charles Point.....	Arsène Messier.....	" 30, 1910..	25 00
St. Marc Point.....	Xiste Préfontaine.....	Oct. 15, 1910..	25 00
St. Onge Traverse.....	Alfred Larivière.....	Nov. 23, 1910..	25 00
St. Ours Locks.....	Nap. Auger.....	Oct. 19, 1910..	25 00
Windmill Point Trav.....	Roch Dansereau.....	Sept. 15, 1910..	25 00
Rivière St. François.....	Philéas Desmarais.....	July 2, 1897..	260 00
St. Anne de Sorel "B".....	Pierre Cournoyer.....	Mar. 28, 1906..	180 00
" " "F".....	Frs Lanciault.....	" 28, 1906..	140 00
St. Anne de Bellevue.....	J. L. Stoker.....	May 20, 1902..	220 00
St. Anne Lock.....	F. H. Demers.....	" 17, 1907..	140 00
St. Emélie "B".....	Emery Filteau.....	Mar. 16, 1905..	140 00
St. Emélie "F".....	A. Laliberté.....	Sept. 24, 1888..	120 00
St. Jean Pier.....	Ernest Menard.....	April 1, 1909..	220 00
St. Ours, Trav. "F".....	J. B. Laporte.....	" 26, 1904..	220 00
" " "B".....	Anathase Gaudette.....	Oct. —, 1908..	160 00
St. Pierre les Becquets.....	M.O. Tousignant.....	May 26, 1901..	100 00
St. Placide.....	Philibert Lefebvre.....	Oct. 1, 1909..	230 00
St. Valentine Range.....	Alfred Martin.....	June 30, 1909..	190 00



STATEMENT giving names of stations and lightkeepers, &c.—Continued.

MONTREAL AGENCY—Concluded.

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Sorel Harbour.....	R & O. Nav. Co.....	Sept. 6, 1854..	85 00
Three Rivers.....	J. W. Luckerhoff.....	" 9, 1908..	180 00
Upper Champlain " B "	Louis Pothier.....	April 1, 1906..	136 00
" " " F "	O. Massicotte.....	" 1, 1906..	120 00
Varennnes.....	Azarie Geoffrion.....	May —, 1903..	120 00
Verchères Trav. " B "	Philéas Charbonneau.....	April 31, 1902..	120 00
" " " F "	F. X. Chicoine.....	" 21, 1902..	140 00
" Village " B "	Félix Bousquet.....	" 21, 1902..	120 00
" " " F "	J. s. Guyon.....	" 21, 1903..	140 00
Way Channel.....	Moïse Beauchamp.....	Nov. 20, 1906..	220 00

ONTARIO DIVISION.

Allumette, Island.....	John Cox, jr.....	June 22, 1887...	180 00
" Lake.....	John T. Manders.....	Aug. 7, 1907...	180 00
Arnprior Island.....	William Kilroy.....	Oct. 1, 1905...	260 00
Aylmer Island.....	Francis Boucher.....	May 3, 1907...	260 00
Bamford Island.....	Robert Bamford.....	June 21, 1888...	*380 00
Barriefield Common " R "	William Murray.....	May 17, 1900...	260 00
Baskin Wharf.....	Silas Sullivan.....	Dec. 22, 1896...	220 00
Battle Island.....	C. S. McKay.....	Aug. 27, 1877...	680 00
Belleville.....	J. C. Weir.....	Apr. 4, 1901...	320 00
Bishops Bay.....	Isaac Larkins.....	Sept. 5, 1910..	220 00
Black Bear Island.....	Daniel Matheson.....		380 00
Blind River Range.....	W. H. McGauley.....	Apr. 28, 1908...	60 00
Bois Blanc.....	Chas R. Hackett.....		525 00
Boyd Island.....	Mme Elizabeth Martin.....	Jan. 6, 1905...	380 00
Brebeuf.....	William J. Baxter.....	May 23, 1885...	440 00
Brighton.....	H. V. Simpson.....	" " 1888...	540 00
Bronte.....	Chas. Osborne.....	Oct. 20, 1906...	260 00
Bruce Mines.....	Wm. Fleming.....	Mar. 31, 1909...	85 00
Buckoms Point.....	Godfrey Ouellet.....	Feb. 23, 1884...	260 00
Burlington Beach.....	Thomas Lundy.....	May 2, 1905...	730 00
Byng Inlet.....	Louis Lamondin.....	July 20, 1901..	*520 00
Cabot Head.....	Charles Webster..	May 10, 1898...	1,180 00
Campbell Island.....	Robert Wilson.....	Jan. 8, 1905...	260 00
Cape Robert.....	N. Matheson.....	Nov. 13, 1902...	440 00
Cape Croker.....	Wm J. Chapman.....	Apr. 27, 1910...	980 00
Caribou Island.....	Antoine Boucher.....	May 3, 1907...	1,440 00
Cecebe Lake.....	John Schade.....	Aug. 29, 1906...	320 00
Centre Brother Island.....	D. Wemp.....	Jan. 9, 1901...	320 00
Chantry Island.....	Malcolm McIver.....	Apr. 1, 1907...	680 00
Chenal Ecarté.....	Peter Willis.....	Dec. 3, 1908...	150 00
Cherry Island.....	I. S. Johnson.....	Nov. 5, 1883...	380 00
Christian Island.....	Allan Collins.....	Mar. 25, 1881...	600 00
Clapperton Island.....	Henry F. Baker.....	Dec. 2, 1895...	*440 00
Cobourg Fog Alarm.....	John Lavis.....	July 5, 1910..	400 00
Cobourg.....	Robert Gorden.....	May 16, 1883...	†240 00
Colchester Reef.....	†† Fred. Malott.....	**Mar. 6, 1888...	880 00
Cole Shoal.....	R. P. Boyd.....	Apr. 9, 1884...	380 00
Collingwood.....	Jas. W. Lunan.....	Jan. 2, 1904...	*520 00
Coppermine Point.....	Frank E. Roussain.....	Apr. 1, 1909...	180 00
Corbay Point.....	Joseph Daviau.....	May 27, 1890...	*440 00
Corunna.....	W. J. Scott.....	Apr. 23, 1901...	220 00
Coteau Landing.....	Thos. Filiatreault.....	May 27, 1890...	180 00
Coulonge Lake.....	Evang. Bertrand.....	Apr. 2, 1892...	180 00

\* \$25.00 for blowing Fog horn.  
† \$30.00 per month extra in winter, for lighting.  
\*\* \$25.00 for Fog Bell.  
†† Transferred from Pelee Passage.



SESSIONAL PAPER No. 21

STATEMENT giving names of stations and lightkeepers, &c. —Continued.

ONTARIO DIVISION —Continued.

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Cove Island	Kenneth McLeod	June 19, 1903	1,180 00
Darlington	Port Darling Har. Co.	1886	100 00
Deep River Island	Jos. Beauchamp	1908	180 00
Deseronto	Rathbun Lumber Co.	Oct. 14, 1884	200 00
Eddy Wharf Range	Eddy Bros.	" 1, 1905	60 00
False Ducks	Darland Dulmage	May 19, 1903	980 00
Ferris Island	J. Morriseau	Mar. 24, 1898	320 00
Flowerpot Island	D. Smith	Oct. 6, 1909	260 00
Fort William, Upper Ottawa	C. L. McCool	Jan. 1, 1911	100 00
Fox Island	Leslie Prosser	Sept. 14, 1896	260 00
Frenchmans Bay	Wm. O'Brien	Apr. 14, 1904	220 00
French River	Mrs. E. B. Borron	Jan. 20, 1903	680 00
Gananoque Narrows and Jackstraw Shoal	Mrs. Manly Cross	Jan. 2, 1908	600 00
Gargantua	Louis Miron	Oct. 26, 1899	600 00
Giants Tomb	A. H. Griffith	Sept. 17, 1898	380 00
Gibraltar Point	P. J. McSherry	May 2, 1905	440 00
Goderich Lights	Robert Campbell	June 9, 1886	460 00
" Beacon	"	" 9, 1886	50 00
Gore Bay	Angus Matheson	July 10, 1903	440 00
Gravenhurst Narrows	Isaac Barnes	Mar. 20, 1906	180 00
Great Duck Island	John Purvis	May 9, 1898	1,180 00
Grenadier Island	Delbert Root	" 20, 1902	290 00
Griffith Island	W. S. Boyd	" 14, 1889	*600 00
Hamilton Island	Réné Casgrain	April 6, 1906	380 00
Hope Island	Charles Vallée	" 20, 1899	555 00
do	Peter Leblanc	Mar. 12, 1909	625 00
Jackfish Bay	Ben. Almos	Oct. 1, 1907	90 00
Kagawong	W. M. Boyd	April 13, 1893	120 00
Kaministikwa	John Armstrong	" 28, 1894	380 00
Killarney	Frank Roque	Feb. 28, 1905	440 00
Kincardine	Thos. McGaw, jr.	June 13, 1889	600 00
Kingsville	W. H. Black	July 27, 1902	260 00
Knapp Point	J. J. Brophy	May 9, 1905	*260 00
Knights Point	William Shannon	Sept. 27, 1866	600 00
Lamb Island	Andrew Alexander	April 26, 1897	680 00
Lancaster Bar	J. J. Munroe	June 8, 1892	520 00
Leamington	F. H. C. Conover	April 28, 1883	260 00
Lime Kiln Crossing	Stephen Pettypiece	May 11, 1888	350 00
Lions Head	Charles Knapp	Oct. 28, 1903	100 00
Little Current	David Boyter	April 22, 1903	440 00
Lonely Island	Jean Haitse	May 11, 1885	*880 00
Long Point, East end	S. B. Cook	June 9, 1897	1,180 00
" West "	F. E. Mason	" 3, 1901	600 00
Lower Narrows	J. B. Leblanc	Jan. 4, 1904	180 00
Lyal Island	John McKay	Oct. 27, 1884	680 00
Manitowaning	John Gourley, jr.	July 2, 1900	220 00
Meaford	Samuel Dutcher	May 7, 1877	260 00
Michipicoten Harbour	W. T. Richardson	Sept. 27, 1900	380 00
Michipicoten Island	Chas. Daviau	June 29, 1910	520 00
Middle Island	John L. Lidwell	June 10, 1889	520 00
Midland Range	Nap. Somers	June 19, 1900	†320 00
Mississagi Strait	J. H. Ball	May 7, 1900	1,180 00
Mississagi Island	L. D. McDonald	" 16, 1896	600 00
Mohawk Island	R. O. Smithers	Mar. 31, 1896	600 00
Morris Island	W. E. Rowan	Feb. 16, 1910	180 00
McKies Point	Dosithé Daoust	Sept. 21, 1893	260 00
McKays Island	Jos. Harvey	July 10, 1907	380 00
McQuestion Point	Elizabeth McLeod	Feb. 22, 1901	180 00
Narrow Island	A. B. Boyter	Jan. 3, 1898	*380 00
Niagara, fog alarm	J. W. McMillan	Nov. 30, 1910	520 00
" "	Robert J. Allan	July 19, 1907	260 00

\* \$25.00 for fog Horn.

† From 1st April 1911.



STATEMENT giving names of stations and lightkeepers, &c.—Continued.

ONTARIO DIVISION—Continued.

Name of station.	Name of lightkeeper.	Appointed.	Salary.	
			\$	cts.
Nigger Island ..	Carson Jeffrey..	April 28, 1904..	320	00
Nine Mile Point.....	Stannes Veech ..	Mar. 7, 1894..	980	00
Nottawasaga Island.....	J. F. Burmister.....	May 2, 1904..	*680	00
Oakville Pier.....	Maurice Felan.....	April 28, 1894..	260	00
Onderdonk bluff.....	E. Bryant.....	Mar. 6, 1911..	140	00
Otter Island.....	Robert McMenemy.....	Nov. 17, 1903..	*600	00
Owen Sound.....	Archibald McLean.....	Dec. 23, 1897..	320	00
Pelee Passage Middle ground.....	Stafford Bottom.....	Nov. 12, 1910..	600	00
" ..	F. Malott 1st assistant.....	Nov. 11, 1902..	500	00
Pelee Passage.....	Henry Amonite ..	Nov. 12, 1910..	450	00
Peninsula Harbour.....	J. Blondin.....	Oct. 14, 1910..	*600	00
Peter Rock.....	James Roddick.....	Sept. 7, 1907..	680	00
Pie Island.....	James Forbes.....	April 1, 1908..	380	00
Pigeon Island ..	J. H. Davis.....	May 16, 1896..	600	00
Pointe au Baril ..	Ole Hanson ..	July 10, 1907..	440	00
Pointe aux Pins.....	Alexander McKinnon.....	May 16, 1904..	520	00
Point Clark.....	M. McDonald ..	Jan. 8, 1897..	600	00
Point Edward. ....	Louis Knauff.....	May 23, 1908..	260	00
Point Peter.....	G. J. Scott.....	June 6, 1901..	980	00
Point Pleasant.....	Frank Connor ..	Oct. 13, 1898..	440	00
Point Porphyry fog alarm.....	Joseph Bousquet.....	Aug. 11, 1908..	600	00
Point Porphyry.....	† Andrew Dick.....	" 10, 1880..	450	00
Port Arthur.....	J. C. Banks ..	April 25, 1908..	350	00
Port Burwell.....	John Sutherland.....	June 18, 1891..	**520	00
" Inner Range.....	" ..	" ..	85	00
Port Colborne.....	D. H. A. Fortier.....	April 11, 1865..	550	00
Port Colborne, F. A.....	Hugh Clarke, jr ..	May 30, 1904..	1,180	00
Port Credit.....	John Miller ..	Dec. 16, 1897..	260	00
Port Dalhousie.....	Bernard McGrath.....	Oct. 2, 1907..	520	00
Port Dover ..	Silas L. Butler.....	July 15, 1897..	440	00
Port Elgin.....	R. M. Lowry.....	Mar. 4, 1896..	180	00
Port Maitland.....	Mrs. Jas. Grant ..	June 29, 1907..	*440	00
Port Stanley.....	John L. Oliver ..	Dec. 16, 1907..	440	00
Presqu'Isle Main, Salt Point ..	Herbert E. Smith.....	April 29, 1898..	400	00
Presqu'Isle Main Fog Alarm ..	W. B. Ainsworth.....	Oct. 12, 1907..	600	00
Providence Bay.....	John B. Sinclair.....	Mar. 6, 1906..	*380	00
Rains Wharf.....	W. W. Rains.....	Aug. 1892..	120	00
Rainy River ..	Patrick O'Connor ..	June 23, 1904..	380	00
Red Rock.....	Adam Brown.....	June 2, 1909..	*620	00
Richards Landing.....	R. Armstrong.....	Feb. 1902..	100	00
Rondeau.....	W. R. Fellows.....	Dec. 18, 1888..	*520	00
Rosseau ..	J. G. Dixon ..	July 4, 1890..	180	00
Sailors Encampment.....	A. M. Rains.....	Aug. 1, 1892..	180	00
Sand Point ..	Peter McLean.....	May 1, 1909..	85	00
Saugeen.....	Angus McAulay.....	Aug. 23, 1909..	190	00
Scotch Bonnet.....	Cyrus R. Spencer.....	April 7, 1903..	*520	00
Shaganash.....	Alex. Clark.....	" ..	320	00
Shaguiandah.....	Wm. Stevens.....	Jan. 11, 1909..	150	00
Shoal Island.....	John L. McCluskie.....	Sept. 11, 1909..	*335	00
Silver Islet.....	Capt. J. Cross.....	May 18, 1905..	180	00
Slate Island.....	A. B. Sutherland.....	July 21, 1908..	680	00
Snake Island.....	John Whitmarsh.....	July 18, 1900..	*350	00
Southampton.....	James Brown.....	June 29, 1904..	260	00
South Baymouth.....	John A. Ritchie.....	Sept. 10, 1903..	220	00
South Bay Point.....	Marcellus Vorce.....	Nov. 21, 1902..	320	00
South E. Bay.....	Thomas Darling ..	Jan. 31, 1891..	140	00
South River.....	Fredk. Beachler.....	July 2, 1903..	180	00
Squaw Island.....	Neil McDougall ..	April 25, 1901..	320	00
St Anicet Bar.....	Donald McKillop.....	June 8, 1892..	380	00
Stagg Island.....	Thos. M. Cowan.....	" ..	260	00

† Retired O. S. C., Dec. 23, 1910.  
\* \$25, Fog Bell.  
\* \$25 for Fog Horn.



SESSIONAL PAPER No. 21

STATEMENT giving names of stations and lightkeepers, &c.—*Concluded.*

ONTARIO DIVISION—*Concluded.*

Name of station.	Name of lightkeeper.	Appointed.	Salary.
			\$ cts.
Stokes Bay .....	Alexander Smith .....	May 14, 1908 ..	320 00
Strawberry Island .....	William McKenzie .....	May 4, 1893 ..	*440 00
Strewsbury .....	C. Thompson .....		50 00
Stripling Point .....	David Humes .....	Aug. 27, 1902 ..	320 00
Sulphur Island .....	William Birch .....	Aug. 1, 1910 ..	380 00
Supple Point .....	C. J. Kelly .....	Oct. 11, 1909 ..	150 00
Success Island .....	Temiskaming Navigation Co.		
Telegraph Island .....	Geo. A. Rowe .....	Oct. 25, 1895 ..	320 00
Thames River .....	H. J. Cartier .....	Oct. 18, 1884 ..	520 00
Thessalon .....	James Harvey .....	Nov. 28, 1897 ..	*440 00
Thornbury .....	Robert Lowe .....	April 12, 1887 ..	*140 00
Thunder Cape .....	William Craig .....	May 17, 1892 ..	1,180 00
Tobermory .....	Archibald Currie .....	Oct. 12, 1903 ..	320 00
Thomahawk Island .....	Thomas Sweeney .....	Sept. 19, 1902 ..	320 00
Toronto, East Pier .....	George McKelvie .....	June 13, 1905 ..	1,180 00
Trenton .....	C. W. Spicer .....	May 5, 1909 ..	190 00
Victoria Harbour, Ottawa River .....	Chas. Berzie .....	Oct. 15, 1910 ..	180 00
Victoria Island .....	George Cosgrave .....	Nov. 14, 1899 ..	*520 00
Welcome Island .....	Adolphe Perras .....	May 10, 1906 ..	980 00
Western Islands .....	T. J. Richardson .....	June 27, 1901 ..	1,180 00
West Sister Rock .....	John Thibault .....	Dec. 7, 1905 ..	520 00
Whisky Island and Penetanguishene .....	Christopher Columbus .....	Mar. 18, 1893 ..	440 00
Whitby .....	Port Whitby Hbr. Co. Ltd. ..	May 1, 1905 ..	100 00
Warton .....	Wm. Gilbert .....	Sept. 13, 1907 ..	100 00
Wicket Point .....	Anson Shortt .....	Oct. 13, 1909 ..	380 00
Wilson Channel .....	H. G. Duncan .....	Aug. 25, 1905 ..	440 00
Wolf Island .....	Wm. Gillespie .....	Mar. 17, 1885 ..	320 00

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Black Bear Island .....	Wm. Hughes .....	Feb. 12, 1892 ..	400 00
Cox Reef .....	** Wm. Doré .....	Aug. 6, 1908 ..	*425 00
George Island .....	A. A. T. McKay .....	Dec. 6, 1909 ..	*460 00
Gull Harbour .....	T. Fjeldsted .....	May 6, 1904 ..	*260 00
Gimli .....	E. G. Thompson .....	Jan. 21, 1910 ..	80 00
Red River Range .....	William Hughes .....	Feb. 12, 1892 ..	520 00
Warren Landing Ranges .....	Hugh McDonald .....	Aug. 14, 1907 ..	400 00

\*\* Wm. Doré died 13th Dec. 1909 and A. A. T. McKay, George Island, has been appointed in his stead at an initial salary of \$460, O.I.C. 31st March 1910. John Tumster, appointed to George Island 31st March 1910.  
\* \$25 for Fog Horn.



STATEMENT giving names of stations and lightkeepers, &c.—Continued.

BRITISH-COLUMBIA.

Name of station.	Name of lightkeeper.	Appointed.	Salary.	
			\$	c.
Active Pass.....	H. Georgeson .....	July 21, 1884...	1,170	00
Alberni.....	Geo. A. Patterson.....	July 6, 1910...	180	00
Amphitrite Point.....	G. W. Grant.....	April 2, 1906...	390	00
Berens Island.....	S. G. Harrison.....	Nov. 4, 1897...	517	50
Brockton Point.....	W. D. Jones.....	Aug. 20, 1890...	517	50
Brotchie Ledge.....	Thos. Sparks.....	Jan. 1, 1903...	180	00
Bare Point.....	T. R. Stevenson.....	.....	270	00
Ballenas Island.....	W. Betait.....	Oct. 3, 1901...	1,170	00
Birnie Island.....	G. Rudge.....	May 2, 1905...	390	00
Balfour.....	J. W. Gallup.....	Jan. 1, 1900...	210	00
Cape Beale.....	W. L. Thompson.....	Sept. 16, 1908...	1,770	00
Carmanah Point.....	W. P. Daikin.....	Nov. 4, 1890...	1,770	00
Cape Mudge.....	J. Davidson.....	June 27, 1898...	570	00
Coffin Island.....	No keeper .....	.....	.....	.....
Crofton Light.....	R. Allan.....	May 31, 1907...	270	00
Discovery Island.....	M. A. Croft.....	April 1, 1902...	1,170	00
Dryad Point.....	C. Carpenter.....	Nov. 7, 1899...	517	50
Dock Island.....	Gas lights operated by agency	.....	.....	.....
Danger Reef.....	R. Harrap.....	April 15, 1903...	150	00
Denman Island.....	J. A. McMillan.....	Aug. 15 1906...	570	00
Entrance Island.....	M. G. Clark.....	Nov. 26, 1897...	1,470	00
Egg Island.....	Jas. Forsythe.....	July 10, 1909...	1,545	00
Estevan Point.....	J. P. Jensen.....	April .. 1907...	1,500	00
Fisgard.....	J. Gosse.....	Oct. 13, 1909...	502	50
Fiddle Reef.....	D. H. McNeill.....	Mar. 21, 1905...	570	00
Fraser River Lights and Garry Pt.....	A. A. Parker.....	July 1, 1907...	570	00
Gallows Point.....	Western Fuel Co.....	May .. 1906...	120	00
Green Island.....	Alex. Dingwell.....	Feb. 11, 1911...	1,320	00
Helen Point.....	Daniel Tom.....	Mar. 2, 1910...	180	00
Ivory Island.....	F. Reuter.....	May 2, 1905 ..	1,170	00
Kyuquot Light.....	A. Ellis.....	Jan. 21, 1906...	390	00
Kootenay Landing.....	C. P. R. Co.....	.....	120	00
Lawyer Island.....	F. W. B. Elsterman.....	April 1, 1905...	780	00
Lennard Island.....	R. Pollock.....	July 1, 1908...	1,600	00
Lucy Island.....	J. O. Ouellette.....	July 6, 1910...	817	50
Merry Island.....	W. T. Franklin.....	Jan. 8, 1904...	570	00
North Arm Lights.....	James Quinn.....	April 1, 1909...	345	00
Nanaimo Harbour.....	H. B. Shaw.....	June 12, 1907...	330	00
Point Atkinson.....	W. Erwin.....	Oct. 5, 1880...	1,320	00
Portlock Point.....	W. J. Gillespie.....	Nov. .. 1905...	607	50
Prospect Point.....	Jno. Grove.....	July 7, 1898...	517	50
Pointer Island.....	Jas. Codville.....	Dec. 26, 1899...	607	50
Portier Pass.....	F. Allison.....	Nov. 15, 1902...	570	00
Procter.....	G. W. Gallup.....	Jan. 1, 1900...	390	00
Pilot Bay.....	E. Montreuil.....	Oct. 17, 1907...	570	00
Pine Island.....	A. B. Gurney.....	April 1, 1907...	1,770	00
Pultney Point.....	E. Hukkla (temporary).....	Feb. 1, 1907...	570	00
Pachena Point.....	W. R. Pillar.....	Sept. 5, 1907...	1,600	00
Quatsino Light.....	N. C. Nelson.....	Jan. 29, 1907...	502	50
Race Rocks.....	F. Eastwood.....	" 21, 1891...	1,770	00
Saturna Island.....	Jas. Georgeson.....	Oct. 26, 1889...	900	00
Sand Heads Lt. Ship.....	M. O'Brien.....	" 1, 1904...	1,470	00
Sisters.....	B. Blanchard.....	Feb. 20, 1905...	1,020	00
Sechelt.....	Gas Beacon (No keeper).....	.....	.....	.....
Scarlet Point.....	Wm. Hunt.....	Sept. 24, 1908...	562	50
Sechart Light.....	G. Strickland.....	Mar. 27, 1908...	270	00
Sooke Light.....	A. Coddell.....	April 15, 1907...	210	00
Trial Island.....	H. O'Kell.....	Aug. 20, 1906...	1,470	00
Victoria Harbour.....	Thos. Sparks.....	Jan. 29, 1903...	180	00
Walker Rock.....	Gas Light (No keeper).....	.....	.....	.....
Yellow Island.....	John Doney.....	May 1, 1905...	1,020	00
Yugerot Light.....	H. T. W. Smith.....	.....	480	00

\* \$10.00 for operating Fog Alarm.







Heavy field of frazil ice from 60 to 80 feet in thickness. Portneuf, Feb. 1911.



Heavy field of frazil ice from 60 to 80 feet in thickness. Surface of ice standing 6 feet above water level. Portneuf, Feb. 1911.







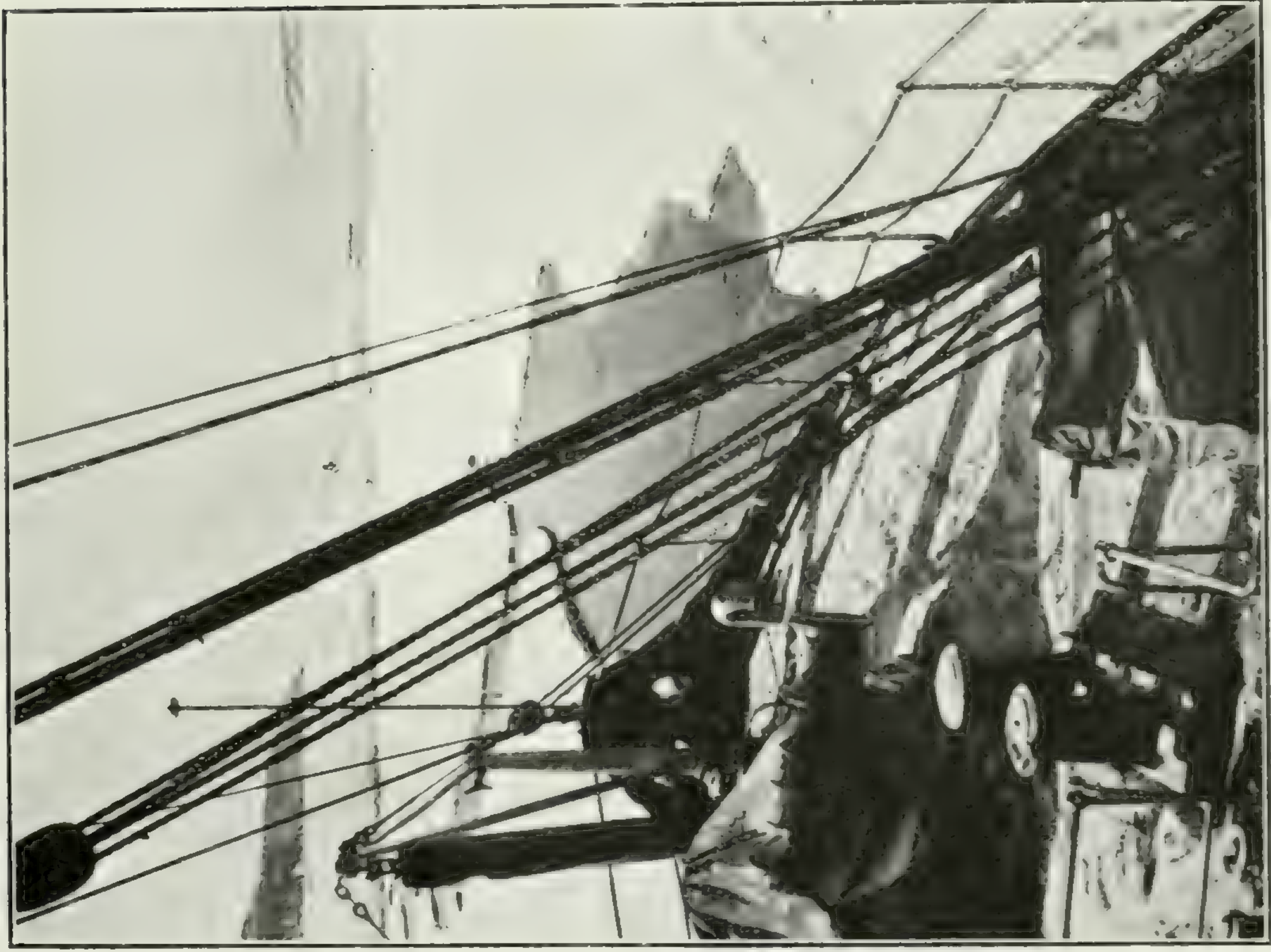


Piece of heavy frazil ice in the act of turning over. Portneuf, Feb. 1911.









Breaking up a heavy batture at Quebec Bridge, Feb. 1911.



“Lady Grey” and “Montcalm” working at Port St. Francis, April, 1911.









“ Lady Grey ” and “ Montcalm ” working in Lake St. Peter, March, 1911.



“ Lady Grey ” working above Sorel in packed ice from three to four feet in thickness, April, 1911.









“Lady Grey” at the instant of striking the ice.



“Montcalm” just after striking the ice.









Experimental 20 Ton Rock-cutter, working in the Cap à la Roche Section, River St. Lawrence Ship Channel. (Stern view, looking up stream).

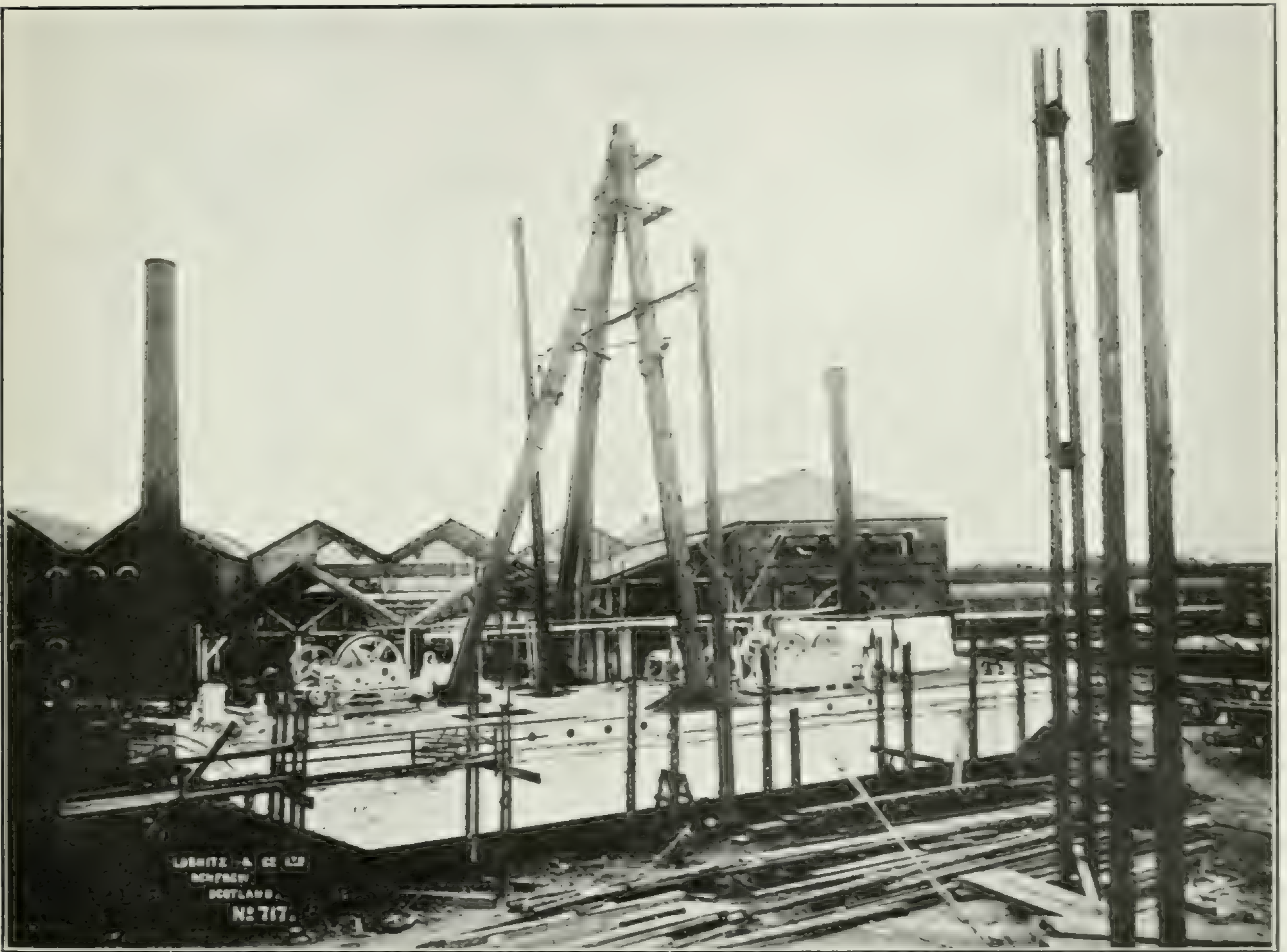


Experimental 20 Ton Rock-cutter, working in the Cap à la Roche Section, River St. Lawrence Ship Channel. (Side view, looking North.)









22 Ton Rock-cutter, for work in the Cap à la Roche Section, River St. Lawrence Ship Channel, being built by Messrs Lobnitz & Co. Ltd. Renfrew, Scotland.









Machias Seal Island lightstation, N.B.



Cape Dogs lightstation, Quebec.









Cape Fouchu lighthouse, N.S.









The Motor Life-boat Banfield, B.C.



Life-boat Station, Southampton, Ont.









U. S. S. "Stanley" cutting icebound vessels out of Bridgewater, N. S.









O. G. Z. "Stanley" cutting ice-bound vessels out of Bridgewater, N.S.



















